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OLDEST AGRICULTURAL AND LIVE STOCK JOURNAL IN THE MISSISSIPPI VALLEY

Sixty-Seventh Year.

ST. LOUIS, MO., AUGUST 27, 1914.

Volume LXVII. No. 35.



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Weekly Market Report

Hog Prices Declining; Light Offerings Are Slow of Disposal At Declines of 10c to 15c.

CATTLE.—The combined estimate called for 1200 head, of which around 800 were natives. The beef steer supply was light and ran largely to medium grades. About the only steers of consequence that were offered were several loads of Oklahoma natives. There was a narrow demand for them and they moved slowly at a 15c decline. The best of them brought \$7.05. Aside from these, only a few scattering odds and ends were offered. Butcher she stuff predominated. While the demand at this stage of the week is never heavy, the fact that because of liberal runs during the fore part of the week enabled killers to get nearly all they needed, and the inquiry was narrower than is generally the case on Friday. It was a draggy market and buyers were exceedingly sluggish. The fact that most of the day's run was medium-grade stuff made the movement all the slower. Prices were unevenly lower and early in the day it was somewhat difficult to even get a bid on medium-grade heifers. Canners were close to steady. Bulls were slow and at the week's decline. Just a moderate supply of vealers was offered and the market was slow, with prices 25@50c lower. Stockers and feeders were quiet and dull at the week's losses.

There was a narrow demand for Oklahoma steers, and even though the supply was light, the movement was slow. Order buyers were practically out of the market and packers claimed that they were able to get nearly all they needed from the liberal runs during the early part of the week. Consequently sellers found it hard to move the steers and the market was slow at a 10@15c decline. No change was evident in the trade in canner classes. Just a moderate supply arrived, and while the demand was not heavy market was generally unchanged.

HOGS.—Only a small supply was received, but this did not serve to check the decline which set in Thursday, as prices yesterday were fully 15c lower than the Thursday basis, and it was a dull trade most of the time and closed a little weak, but there were some hogs that had to be carried over. The market was back close to the same basis as it was on at the opening of the week. Several loads of good hogs went at \$9.45, which was the top of the market and 5c higher than any hogs brought yesterday in Chicago. The bulk of the local hogs went at \$9.20@9.35, which is also better than the bulk sold on any of the other western markets. Shippers and city butchers were

ready purchasers of the good hogs, 180 pounds and over, and were willing to give \$9.35@9.45 for them, while packers took the plainer grades at \$9.10@9.35, with a few around \$9. Rough packers went at \$8.30@8.65 and found ready sale. Packers were inclined to be a little bearish and did not make a strong effort to purchase a big string.

Lights and pigs that had plenty of quality found a right good market, but the poorer grades were hard to place at anything like satisfactory prices, as there was no material demand for them. Best lights under 165 pounds sold at \$9@9.35, fair grades \$8.50@8.90, best pigs weighing less than 125 pounds went at \$8@8.75, fair \$7.25@7.90 and the poorer grades at \$6.25@7.00.

SHEEP.—The supply was small and there was a good demand and all desirable lambs offered found ready sale at prices that were a little higher, but there was no material change in sheep, all good fat kinds selling readily. Breeding ewes of the best type are selling on the highest basis of the year.

Good lambs sold at \$8@8.20 and packers paid around a dime better on the good ones they purchased. A fair grade of lambs sold at \$7.50@8.00 and the culls \$6@7; however, there were not many culls offered, as buyers did not sort the lambs closely, owing to the small number offered and the strong competition.

Most of the mutton sheep went at \$5.25, with a few of the plain kinds at \$5. Choice black-face breeding ewes went at \$6@6.10, fair \$5.50@5.90. Choppers and stockers that were good sold at \$3.50@4.50, while plain stockers and old cull sheep went at \$2.50@3.35 and bucks \$3.75@4.00.

HORSES.—In the last few weeks horses have fallen off anywhere from \$15 to \$50 per head and this sharp drop would naturally have a drastic effect on the market. Mules at present are in no better condition, as a draggy trade is in evidence in this section also, and very few animals are finding suitable outlets.

WEAK LAMBLETS.

Weak lambs at birth are one of the most perplexing difficulties, the cause of which may be traced to various sources. Lack of proper assimilative ability on the part of the female may weaken the growth of the foetus during the stage of development. This condition is more prevalent among old ewes which have lost their teeth.

Poor assimilation may be brought on in young ewes through weak digestive organs. Unthriftiness is one of the most apparent evidences of poor assimilative ability, and may generally be remedied in the case of young animals by sorting out and feeding them extra with a variety of foods until the system regains its normal condition.



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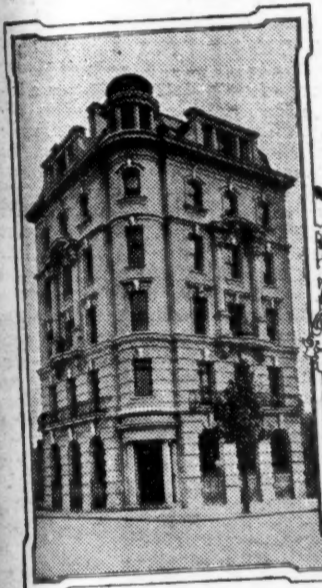
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Sincerely yours,

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IN THE POULTRY YARD

IS THERE A POSITIVE EGG TYPE?

Everything Indicates That There Is An Egg Type in Poultry the Same As There Is a Dairy Type in Cattle—Missouri National Egg Contest Report For July.

All signs sometimes fail, and there are exceptions to all rules, but we are of the opinion that there is a definite type in poultry which indicates productiveness the same as a good dairyman finds that certain characteristics and a certain conformation in cattle indicate the productiveness or non-productiveness of certain individuals. Among other things it is generally agreed that to be a good milker a cow must be healthy and vigorous, she must have a big body or plenty of capacity, and she must have a large udder and large milk veins. The more we study the productiveness in poultry the more firmly we are convinced that the same general principles apply to the productive hen. That there is an egg type in poultry and the day will come, if it is not now at hand, when we can tell in a general way the good from the bad by certain and definite characteristics. Of course in the dairy business the "Babcock test" is the final test of the quantity of butter fat, and just so with poultry, the trap nest will perhaps always be the final test.

Mr. Tom Barron of Catforth, England, recently visited this place, and while here we had him visit seven or eight different yards and point out one or two good and bad hens in each yard. He did so, and after he had left we looked up the records in each case and found that the hens which he claimed were of poor type and poor producers were among the poorest layers as verified by our records. In one case we had a White Orpington which had not laid an egg and she was in a pen with eleven other hens. The hens were driven before him and at first glance he picked out this hen which was a blank as far as production was concerned. The hen was in good health and to the ordinary observer looked about like any of the others. He pointed out the good and bad in other pens without handling a single hen. The trap nest records verified his statements.

We believe that any man with reasonable intelligence who studies, year after year, the question of selection and breeding for egg production, as Mr. Barron has done, will get a certain and definite type firmly fixed in his mind just as is true in his case, and as is true with the dairyman. What is this type? That is the question.

We discussed this and other questions with Mr. Barron for several days. While we will not quote his exact words, and we hope not to misquote him, yet we feel safe in saying that he believes the following to be true: An egg laying strain cannot be produced by inbreeding. In order for a hen to be a good producer, she must be in good health and full of vigor. In his own case, he has not bred from a male for years which was not bred from hens which laid 200 eggs or over, and he recommends that method. He does not try to overdo the thing and has not bred for the 300 egg hen and over. His best record was 283 eggs in one year. He breeds for high averages instead of exceptionally high individuals and this has been true with both pens which he has had in our egg laying contests at this place.

A good layer usually stands high in front and her back is not on a level or the rear higher than the front. The best producers usually have large combs, a high tail, and a prominent, large, bright eye. Upon handling the birds, he finds that most of the best layers have thin, straight pelvic bones; that there is quite a distance between the points of the pelvic bones and the point of the breast bone. This indicates capacity and



lots of room for the egg and digestive organs. He likes the wedge shape, rather narrow in front, but wide behind and wide between the legs.

Mr. Barron agrees that the males must be from high laying hens. He also advises looking well to the females and using hens which have shown they are able to make good records. A hen that will not lay well in winter months is discarded by him, for a hen that doesn't lay well in winter will not make a good record as a rule and he wishes to breed hens that lay eggs when eggs are highest in price. He uses two males in his breeding pens, alternating them every five days. The males are full brothers as a rule. He gets better fertility, stronger chicks, and better hatchings, he thinks. Broodiness will ruin the egg record of any hen. We must breed to eliminate that from our flocks as much as possible. There is a blocky, beef type in every variety which does not lay. He advises not to trap nest the entire flock, but trap nest at least a few of the most promising ones. Keep accurate records, pedigree the chicks, and results are sure to follow. There must be regularity in feeding. He believes we should feed more moistened mash, and also believes in some cases that it pays to soak the grain. A hen, in order to make a good record, must produce quite a large number of her eggs in winter months. His experience has been that the first pullets of a brood to begin laying make the best layers, and the first cockerels to crow usually make the best breeders for egg production. Mr. Barron's views coincide largely with our own and with the results which have been obtained at this experiment station. We have made a very careful study of these matters for several years and we had reached the same conclusions about most things, even before talking to Mr. Barron.

The Next Contest.

The pens are practically all filled for the next contest, which begins November 1st, 1914. Only a few pens are left and any one desiring to make an entry in the 1914-15 contest should write at once for rules and regulations and an entry blank. We would be glad to have all varieties properly represented. It would be a great thing for each variety, if such was the case.

The Contest Report For July.

A Missouri pen, No. 65, S. C. W. Leghorns, from Marshallfield, Mo., leads for this month with 239 eggs, and won the silver cup. Three Missouri pens were among the ten highest for July, three from New Zealand, one from England, one from Australia, one from Nebraska, and one from Pennsylvania. All ten of the highest pens for this month were White Leghorns. The Rhode Island Reds from Missouri dropped from second to third place. White Wyandottes from Pennsylvania are in sixth place, and Barred Plymouth Rocks from Ohio advanced to ninth place. The English White Leghorns are still 245 eggs in the lead.

The National Egg Laying Contest.

The ten leading pens in this experiment are as follows:

Pen 0, S. C. White Leghorns, England, 1772 eggs; pen 47, S. C. Reds, Missouri, 1523 eggs; pen 18, White Wyandottes, Pennsylvania, 1439 eggs; pen 9, S. C. White Leghorns, Pennsylvania, 1427 eggs; pen 24, White Wyandottes, England, 1356 eggs; pen 59, Barred Plymouth Rocks, Ohio, 1342 eggs; pen 53, Barred Plymouth Rocks, Illinois, 1341 eggs; pen 51, White Plymouth Rocks, Arkansas, 1338 eggs; pen 44, S. C. Black Minorcas, Missouri, 1331 eggs; pen 48, S. C. Black Minorcas, Missouri, 1317 eggs.

The highest hens in this section of the contest are five English hens, each having a record of from 178 to 194 eggs. Also a Barred Plymouth Rock from Iowa has 178 eggs to her credit. This hen is one owned by an Iowa breeder who has had pens in our contests for the past three years. The first year his birds made practically a complete failure. The next year they improved considerably, and this year he has made marked improvement. This pen will have some birds which will go far over two hundred eggs. So much to the credit of egg laying contests.

National White Leghorn Contest.

The hens in this experiment have made rapid advancement in the last few months. They are laying and adding to their records, while many other pens are broody. The ten highest pens in this contest are as follows:

Pen 79, S. C. White Leghorns, Pennsylvania, 1527 eggs; pen 65, S. C. White Leghorns, Missouri, 1516 eggs; pen 70, S. C. White Leghorns, Missouri, 1453 eggs; pen 61, S. C. White Leghorns, Nebraska, 1372 eggs; pen 69, S. C. White Leghorns, Kentucky, 1342 eggs; pen 77, S. C. White Leghorns, Vancouver Island, 1333 eggs; pen 72, S. C. White Leghorns, Iowa, 1332 eggs; pen 80, S. C. White Leghorns, Missouri, 1283 eggs; pen 71, S. C. White Leghorns, Missouri, 1273 eggs; pen 67, S. C. White Leghorns, Missouri, 1262 eggs.

The highest records made by individual hens in this experiment were made by hens number 611 from Nebraska with 190 eggs and 653 from Missouri with 190 eggs, these two hens tying for second place in the entire flock of 1040 hens.

National Utility Contest.

In this test, the Barred Plymouth Rocks are in the lead. The ten highest pens rank as follows:

Pen 86, Barred Plymouth Rocks, Michigan, 1253 eggs; pen 92, S. C. Reds, Pennsylvania, 1223 eggs; pen 85, Barred Plymouth Rocks, Texas, 1191 eggs; pen 94, S. C. Reds, Ohio, 1156 eggs; pen 39, White Wyandottes, Arkansas, 1042 eggs; pen 97, White Wyandottes, Texas, 1025 eggs; pen 93, S. C. Reds, New York, 1003 eggs; pen 84, Barred Plymouth Rocks, Missouri, 947 eggs; pen 87, Barred Plymouth Rocks, Missouri, 914 eggs; pen 88, White Orpingtons, Kentucky, 904 eggs.

The total number of eggs laid this month was 14,919 eggs.

I hereby certify that the above is a correct report of the National Egg Laying Contest, the White Leghorn Contest and the Utility Contest for the month of July, 1914, and also the total report to date.

T. E. QUISENEERRY,

Director State Poultry Experiment Station, Mountain Grove, Mo.

PRESERVING EGGS FOR WINTER USE.

By C. A. Webster.

Eggs preserved in a water-glass solution will keep almost perfectly for several months. They will poach nearly as well as fresh eggs although the taste is a trifle more flat after long storage. These are the conclusions of the Missouri College of Agriculture after a careful investigation of various methods of storing eggs for winter use.

Water-glass is purchased in liquid form. Druggists commonly retail it at 25 cents a quart, and one quart is enough to preserve 20 dozens of eggs. For this number a five-gallon stone or earthenware crock is the most satisfactory receptacle. Heat 10 quarts of water to the boiling point and allow it to cool. Then pour the water into the crock, add one quart of water-glass and mix the two. The solution is then ready for the eggs. Place the eggs in the water-glass solution each day as soon as they are laid. Use only naturally clean, not washed, fresh eggs. When the crock is filled to within two inches of the top of the solution, cover and store in a cool, dry place until winter.

By this method eggs may be stored during spring and summer when they are relatively cheap and production is high, for use during winter when prices are high and production is low. Farmer and townsman alike may save many dollars by this method of cheap storage of eggs. It is of the greatest importance that the eggs used should be absolutely fresh. Water-glass will not make bad eggs good, but will keep good eggs from becoming bad.

PROVIDE SHADE FOR POULTRY.

By H. L. Kempster.

Failure to provide shade for poultry during the summer months not only results in a large number of deaths, but the flocks are less productive. The importance of summer shade cannot be overestimated. Poultry of all kinds require shade. Ducks and geese very quickly succumb if they are unable to get protection from the sun's rays. It is easy to provide plenty of shade. The Missouri College of Agriculture recommends the following ways of furnishing shade for poultry. Portable houses can be set up on blocks so that the birds may run underneath; orchards, sunflower patches, corn fields, etc., can be so arranged that the young stock or mature hens may run in them. Corn fields make excellent summer range for young stock. They furnish plenty of shade and other conditions for rapid, economical growth are ideal. A little planning on the part of the farmer will make poultry keeping more profitable. By providing shade the losses are reduced, the flock is more productive, and the young stock will make more economical growth.

HIGHER PRICES FOR EGGS.

Very often a dealer will pay a better price for eggs to the man who can deliver a large number at regular intervals. Such a dealer is usually the man who has regular customers himself that expect him to supply them with a given quantity at given periods. Particularly can such men be found near seaport towns from which eggs are exported.

C. H. Dangers, who lives near a shipping point, has made arrangements with a dealer whereby he not only gets about one cent a dozen higher price than the average egg producer, but he gets this price at his own farm. The dealer pays the transportation charges which amount to about five cents per case. There is an electric trolley with a station on the Dangers Farm, so this makes the transportation low.

Arrangements quite similar to this might easily be made by other egg producers. All that it necessary is to seek out the buyer whom you know to have some important customers and then ask him for a better price upon the assurance that you will furnish him with a given number of eggs at stated intervals.

Nitrogenous food will grow bone and muscle; carbonaceous food makes fat.

Pullets very often are slow at starting to lay owing to becoming too fat. In growing pullets there should be more nitrogenous and less carbonaceous food given them.

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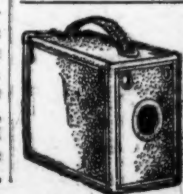


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CREAM of the DAIRY NEWS

THE PRODUCTION OF CLEAN, SAFE MILK.

Persons engaged in the production of milk and consumers interested in procuring clean, safe milk, will be interested in the factors for producing the same, as outlined by the United States Department of Agriculture in a recent Farmers' Bulletin (No. 602), entitled "Production of Clean Milk." The essential factors are outlined as follows:

Clean, healthy cows, kept in clean, light, well ventilated stables.

Stable so constructed as to be easily cleaned.

A clean, well-drained barnyard.

Clean utensils, thoroughly sterilized.

Clean, healthy milkers that milk with dry hands.

A small-top milking pail.

Immediate cooling of the milk to 50 degrees F. or lower.

Storage of milk at a low temperature until delivered.

A separate house for handling the milk.

An abundant supply of pure water.

The new bulletin in its 13 pages contains a number of figures and describes in detail, the practical methods that should be followed in the production of clean milk.

How Milk Becomes Diseased.

Bacteria, according to the bulletin, find their way into the milk from various sources. Some may come from the udder itself, where they grow in the milk cisterns and ducts. The greater number, however, come from the dust of the air, the dirt from the udder and flanks, from the milker, and from unclean utensils. Disease-producing bacteria may get into the milk from cows having such diseases as tuberculosis, or from people who handle the milk, who may themselves have contagious diseases or who have been taking care of patients afflicted with such diseases as typhoid fever, diphtheria, and septic sore throat.

The consumer is sometimes responsible for the contamination of the milk. Milk bottles should not be taken into a sick room, because infectious diseases can be spread by carrying infected bottles back to the dairy farm. If bottles are left where there are contagious diseases, they should not be collected by the milkman until they have been properly disinfected by the board of health. In the case of typhoid fever or other serious diseases which may be carried in the milk, it is better for the consumer to put out a covered dish for the milk or have it delivered to some member of the household. Until official permission has been granted, no milk bottles should be removed from a home in which there is or has recently been a case of communicable disease. The consumer should not use milk bottles for holding vinegar, kerosene, or liquids other than milk.

Why Clean Milk Is Important.

The consumer is interested in clean milk primarily because no one cares to use a food which is not produced and handled under sanitary conditions. There is a more direct interest, however, because of the danger of contracting disease which may be communicated by this means. Serious epidemics of typhoid fever, septic sore throat, and other diseases have been disseminated through the milk supply. The weight of scientific evidence at the present time leads to the conclusion that tuberculosis may be transmitted from animals to human beings, particularly children, who consume raw milk containing tubercle bacilli.

From the health standpoint there is great danger not only from the specific disease-producing bacteria previously mentioned, but from milk that contains large numbers of miscellaneous bacteria which may cause serious digestive troubles, especially in infants and invalids whose diet consists chiefly of milk. There is also the minor consideration of the loss to the consumer from milk souring or otherwise spoiling before it can be used. The cleaner the milk, the longer it



will keep good and sweet.

Clean milk not only benefits the consumer, but the milk producer who will consider this subject from an unbiased standpoint will find many ways in which he himself is benefited by producing clean milk. There are a number of items in this connection which, when considered alone may seem unimportant, yet collectively they are of great importance. Moreover, they are not only of immediate value, but have a cumulative value reaching far into the future. Tuberculin testing, for example, is not only a safeguard to the purity of milk supplied for the consumer, but is a means of assisting the producer to protect his herd against future ravages of tuberculosis.

Most producers of market milk have experienced the chagrin of having a shipment of milk refused or returned because it reached the market sour, tainted, or otherwise in poor condition. Although such milk may be used for feeding pigs it usually means a complete loss to the producer, as it costs too much to transport it back to the farm and because, depending on the market as an outlet for his milk, he has no means for utilizing small amounts at uncertain intervals. Another important consideration is the unpleasant effect upon the purchaser. Delivering sour or tainted milk usually results in losing the confidence of the dealer; or if it is delivered direct to the consumer, it means the loss of good customers. A reputation for clean milk means fewer complaints, a better class of patrons, and a steady market for the product of the dairy.

Safeguarding the purity of the milk is a protection to health on the farm in several ways; first, the health of the farmer's family, who use a portion of the milk themselves; second, the health of the calves, which live largely on milk. Healthy cows to breed from and pure milk to feed upon are two important factors in rearing thrifty calves and in the development and maintenance of a healthy and profitable herd. Aside from these immediate and definite benefits there is another consideration, not immediately measurable but of vast influence, namely, the moral influence, for no one can learn to produce good and clean milk without learning good methods of care and management of the herd, and the study of these things leads to greater care and intelligence in the economic features of the business.

The new bulletin goes into great detail regarding the precautions necessary for the production of clean milk and the dairy farmer should find it to his advantage to send for the pamphlet.

STIR MILK IN CANS DURING WATER COOLING.

The milk in the top of the can just above the water level in the cooling vat cools much more slowly than the milk that is below that level, according to experiments just completed by the Dairy Division of the United States Department of Agriculture. The warmer milk in the top of the can does not circulate naturally with the cold at the bottom. The cold milk being heavier than the warm will remain at the bottom of the can, while the warmer and therefore lighter portion will remain at the top, and practically no circulation will take place. The transfer of heat in this case is very slow; moreover, the milk around the sides of the can cools much more quickly than that in the center of the can. It, therefore, is important

to stir the milk while cooling.

In experiments made with cans where the top of the milk was above the water level, it was found that the milk above that level remains from 5 degrees to 6 degrees warmer than the portion below the level. Bacteria consequently will develop at a higher rate in the top of the milk, and when later the milk is mixed, the souring of the whole canful will be hastened by reducing the temperature of the whole and also by the increased number of bacteria in the warmer portion.

In the experiments all the cans were cooled by the same method. The milk in some of the cans was stirred every 15 minutes while that in others was not. The water in the cooling tank was 62.6 degrees F. The milk that was stirred cooled from nearly 90 degrees to slightly above 60 degrees in three hours. The unstirred milk did not get down to a similar temperature for four hours and fifteen minutes. Meanwhile, in the unstirred milk all the milk above the water level in the running water was 5 degrees to 6 degrees warmer. The comparatively rapid decrease in temperature when the milk was thoroughly stirred at intervals of fifteen minutes demonstrates the advantage of agitating the milk while cooling.

The advantage of stirring is emphasized by the fact that at the time the milk was stirred the temperature of the room was over 6 degrees warmer than was the case when the unstirred milk was put into the running water. The time taken to cool the milk in either case, however, is too great for good results, and the test served best to demonstrate the necessity of employing some form of milk cooler suitable for farm use, and more efficient than running well water.

Where ice is plentiful and may be had at normal cost, it is easy to reduce the temperature of the milk to 40 degrees F. This may be done by running the milk or cream over some form of cooler around which cracked ice, or a mixture of ice and salt, is placed, or through which ice water is circulated.

Where the milk is placed in cans and set merely in cold water or even in a tank filled with ice water, the cooling goes on very slowly, especially if the cans are large.

CHURNING TEMPERATURE.

The temperature at which cream should be churned should be determined by a trial churning of at about 54 degrees F. If the butter comes quickly and is soft, churn at a lower temperature next time. If it comes firm and requires a long time to churn a higher temperature should be used next time.

The churning temperature will be effected by the following factors:

1—The hardness or softness of the butter fat. Feed, breed, and individuality determine hardness or softness of butter fat.

2—Amount of ripening. Sour cream may be churned at a higher temperature than sweet cream.

3—Temperature cream was held at previous to churning. High temperature in ripening and holding requires lower temperature in churning.—G. E. Frevert, Dairyman, Idaho Experiment Station.

If cows have passed through a number of years of heavy milk production and are on the decline they should be considered largely for their value to produce two or three choice calves. To buy them as foundation for the commercial dairy would be a mistake. It is only in exceptional instances that a cow that has been fed heavy rations of rich feeds will prove a good investment in the commercial dairy. On the other hand a dairyman with limited means, and who desires to establish a pure-bred herd, may find it advantageous to purchase a few aged cows as foundation stock. Many an old cow has made money for her owner; but it is probably better to seek those that are yet in their prime or just reaching it. They will cost more money than the older animals, but they will be worth it in the long run.

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Cattle

THE IMPORTANCE OF COST ACCOUNTING IN FEEDING CATTLE.

The importance of keeping accurate farm records of the cost of feeding animals is shown in reports giving the profits from feeding on 24 Iowa farms.

These records, which were made on the corn belt farms of men known to be careful and experienced feeders, were kept carefully for two years. The results as reported in Farmers' Bulletin No. 588, of the United States Department of Agriculture, are as follows:

To determine as accurately as possible the cost of feeding farm animals cost-accounting records were kept for two years on 24 Iowa farms. The men selected were leading farmers in their communities, known to be careful and experienced feeders. (During the feeding year beginning with the fall of 1909 the average profit on 961 cattle fed in 22 bunches was \$2.05 per head, in addition to the profits on the hogs following them. The prices received were very satisfactory. The 1,504 hogs following these steers were given extra grain. Market prices in the spring of 1910 were such that a profit of \$6.67 per hog was secured, thus giving a profit of \$12.49 per steer when the pork was credited to the steers.)

The following feeding year, 1910-11, proved unsatisfactory, due to prices which caused a loss of 78 cents per head on 1,138 cattle that were fed on 28 farms. The 1,646 hogs following these steers returned an average profit of \$3.33, or, when the profit on the hogs was credited to the steers, the net profit was \$4.04 per steer.

Until systems of cost accounting which took into account all the overhead charges as well as the main cost were used, the expense of feeding was underestimated. The following table shows the proportionate cost of different items, based on the cost-accounting records kept on the 24 Iowa farms. These figures will vary somewhat from year to year as the relative prices of cattle and feeds change. The greatest variation will occur in the original cost of the cattle and in the cost of the feeds.

Percentage of the various expenses incurred in cattle feeding on 24 Iowa farms:

Year, 1909-10; purchase price (1), per cent, 55.8; feed, per cent, 36.9; interest at 6 per cent, per cent, 1.3; labor, per cent, 1.6; shipping and selling (2), per cent, 4.4; total per cent, 100. Year, 1910-11; purchase price (1), per cent, 59.9; feed, per cent, 31.8; interest at 6 per cent, per cent, 1.8; labor, per cent, 1.8; shipping and selling (2), per cent, 4.7; total, per cent, 100.

(1)—Delivered at farm (including freight and incidental charges).

(2)—Exclusive of shrinkage.

In this table no account was taken of the occasional loss of a steer, which ordinarily averages 1/2 of 1 per cent of the total number nor were interest, taxes and depreciation charges on the feeding plant considered. Careful study indicates that these and other incidental charges would about offset the value of the manure, which is also difficult to estimate. In the table interest has been charged at 6 per cent on the cost of the cattle laid down at the farm.

The labor percentage was figured on the basis of man labor at 16 cents an hour, and horse labor at 8 cents an hour. The labor cost on 49 bunches of cattle, totaling 2100 head, for an average feeding period of 146 days, was a little over 9 1/2 mills per head. The cost varied from 4 mills to as high as 2 or 3 cents, dependent on the manner in which the cattle were fed. A larger feeder figured on 1 cent per day per steer for labor. On 500 head this gave him a small profit, which increased with the number fed. A large feeding plant which was operated for 11 years in Nebraska, and during that time fed about 50,000 steers, figured its cost at 1.2 cents per head per day. While this farm had expensive labor and equipment, it nevertheless had every convenience for the economical handling of the feeds.

The selling cost, including freight, yardage, commission, and other inci-

dentials, will vary with the distance shipped. The total cost on 676 cattle shipped from Central Iowa to Chicago amounted to \$3.98 per head, or 31 cents per hundredweight. This does not include shrinkage in transit, which would have to be added to these costs. As the average shrinkage in transit of all classes of cattle is about 4 per cent of their live weight, the value of this loss in weight may be added to the above costs and the amount calculated on the hundredweight basis. These figures give a fair working estimate, as ordinarily the freight rate will not run much higher, because persons living farther east will either be a shorter distance from Chicago or will choose some market still farther east. Those living farther west will, to a great extent, patronize the "river" stockyards. A prominent Kansas feeder estimates, figuring all charges, that it costs 50 cents per hundredweight to ship from the central part of that state to Chicago, this charge varying somewhat with the weight of the cattle.

The difference between the purchase price and the selling price of an animal is called the margin of profit. This is usually estimated on the basis of 100 pounds live weight. Thus a margin of \$1.50 means that the feeder received \$1.50 per hundredweight more for the animals than he paid for them. The amount of margin is a very important factor in the profit from feeding steers. The margin required to break even in feeding operations depends upon a number of factors, the principal ones being (1) the purchase price, (2) the weight of the cattle purchased, (3) the value of the feeds used, (4) the gain in weight made by the animals, and (5) the length of the feeding period. The higher the purchase price, the heavier the steer when purchased, the cheaper the feeds, the greater the daily gains, and the shorter the feeding period, the smaller the margin may be between the purchase price and the selling price of the cattle, without loss to the feeder. With a steer of poor quality and with high-priced feeds, the margin must of necessity be great, but with the best quality of steers and with cheap feeds the necessary margin may be very small.

FOOD FROM THE COTTON FIELD.

Grain crops and cattle crops are our main source of food, and cotton crops for clothing, but there is also a great potential food supply in the cotton crop if we but understood how to unlock it.

According to a recent monograph by Erwin W. Thompson, commercial agent of the Department of Commerce, European nations are finding out very rapidly how to make food of our cottonseed oil. France, Italy and other southern nations have always considered oil an essential article of diet. Olive oil is their native supply, but they have now learned the economy

of exporting their olive oil at high prices and importing in its place American cottonseed oil, which is lower in price but not lower in nutritive value.

Germany, the Netherlands, and other northern countries, like ourselves, are not fond of eating pure oil, but need more butter than the cattle can produce, so they resort to artificial butter and have developed it to a high degree of palatability. The surprising statement is made that the principal countries of Northern Europe are now making artificial butter ("margarin" they call it) to the extent of 580,000 tons per year, and the significant part of the story is that in 1913 they used as an ingredient over 300,000 barrels of cottonseed oil from America, and are planning for an increase in 1914.

By the recently discovered process of solidifying liquid oils, cottonseed oil is now beginning to compete with hard coconut oil, which sells at even higher prices than olive oil, and is becoming very popular as an ingredient of artificial butter.


Cottonseed oil has exactly ten times the nutritive value of beefsteak and costs only half as much. As the United States makes each year over three million barrels of refined cottonseed oil, it is worth while to study the various methods of making it acceptable as food.

Much valuable information concerning such foodstuffs is to be found in Commercial Agent Thompson's monograph, which is entitled "Cottonseed Products and Their Competitors in Northern Europe. Part II, Edible Oils." (Part I dealt with cottonseed cake and meal.) It may be obtained at 5 cents a copy from the superintendent of documents, Government Printing Office, Washington.

WHY PURE-BREDS ARE PREFERRED TO MONGRELS.

When the desired qualities came to be fixed in a whole family of animals it was but natural that these animals should be highly valued and that a record should be kept of them. So it was that "stud books" and "herd books" and "registers"—in which the names of different animals were set down along with those of their ancestors—came into being. Now every breed has its records, and if an animal cannot find a place in the register of his breed—and he cannot unless his ancestors' names are recorded there—he is not considered a pure-bred, says Progressive Farmer.

It needs but a moment's thought to show any one why pure-bred animals are desirable for breeding purposes and why one who wishes to improve his livestock can afford to pay several times as much for an animal whose family history is known for generations back as one of uncertain breeding. Even if the "mongrel" or "scrub"—the animal of unrecorded and unknown parentage—looks to be all that the breeder desires, the wise breeder will not use him. This is



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especially true of sires, as their qualities may be handed down to a great number of descendants. There are two reasons for this. One is that the descendants of such mixed-blooded animals cannot be registered; the other, and more important, is that no one can tell with any certainty just what kind of descendants the mongrel sire will have. It is one of the laws of nature that qualities, both good and bad, may be inherited not only from father and mother—dam and sire—but from ancestors further back. If the family, or strain, has been bred for many years for a certain purpose, desired qualities all the time being strengthened and undesirable ones lessened as much as possible, it is almost certain that all members of the family will inherit most of the qualities which belong to the family. If, on the other hand, the animal is the product of crosses of different breeds or of animals of no particular breeding, one can only guess what qualities will be transmitted, or how many unsuspected qualities from unknown ancestors will show in the offspring.

For these reasons the man with a large dairy herd, for example, can afford to pay several dollars for a Jersey or Holstein bull rather than use a scrub or a beef bull. It is practically certain that the daughters of the Jersey or Holstein will be at least fair milkers, because they will inherit milking qualities from many generations. The beef bull's daughters will inherit the tendency to lay on flesh rather than that of giving milk, while the scrub's daughters may, for all the dairyman knows, inherit all sorts of qualities, good, bad and indifferent.

The same general rule holds good with all classes of livestock; and in the next few articles, dealing with the different farm animals, we shall learn more of the history of some of the leading breeds, and see more reasons for the formation of these different breeds, for keeping them pure, and for using pure-breds as sires even on the farm devoted to general farming and not especially to the raising of livestock.

If hay is too green to haul in the same day it is cut it should be bunched with the rake before night; the next morning these bunches should be turned over with the rake, and after it is exposed to the sun and air for one hour it may be put into the barn. When timothy is dead ripe we have frequently raked it up after it has been tedded twice, hauling in just as fast as cured, cleaning up the field the second day.

Missouri County Fairs

Bates, Bates Co. Fair, Butler, C. E. Robbins, Sec.	Sept. 8-11
Buchanan, Buchanan Co. Agr. & Mec. Soc., Easton, J. P. Sweeney, Sec.	Sept. 2-5
Cape Girardeau, Cape Girardeau County Fair & Park Ass'n.	
Cape Girardeau, J. T. Nunn, Jr., Sec.	Sept. 30-Oct. 3
Chariton, Prairie Hill Fair, Prairie Hill, C. Z. Sears, Sec.	Sept. 3-5
Clinton, Plattsburg Fair Ass'n., Plattsburg, Geo. C. Bryan, Sec.	Oct. 7-9
Cole, Centertown Live Stock Show, Centertown, R. B. Hathorn, Sec.	
Crawford, Crawford Co. Fair Ass'n., Cuba, I. C. Walker, Sec.	Sept. 8-11
Dade, Dade Co. Agr. & Mec. Soc., Lockwood, Dr. R. A. Frye, Sec.	Sept. 29-Oct. 2
DeKalb, DeKalb Co. Agr. & L. S. Exhibit, Mayville, E. A. Hofstatter, Sec.	Sept. 2-5
Franklin, Franklin Co. Fair, Washington, H. H. Thias, Sec.	Sept. 10-12
Grundy, Grundy Co. Fair Ass'n., Trenton, A. T. Cornwell, Sec.	Sept. 1-4
Green, Driving Park Fair, Springfield, Jesse M. Cain, Sec.	Oct. 6-10
Howard, Howard Co. Fair Ass'n., Fayette, Jasper Thompson, Sec.	Sept. 8-11
Jackson, Independence Fair, Independence, W. H. Johnson, Sec.	Sept. 1-4
Jefferson, DeSoto L. S. Agr. & Hort. Ass'n., DeSoto, C. J. Davidson, Sec.	Sept. 22-25
Johnson, Chilhowee Annual Calf Show, Chilhowee, D. L. Albin, Sec.	
Knox, Knox & Shelby Co. Fair, Newark, W. A. Henderson, Sec.	Sept. 1-4
Lewis, Lewis Co. Agr. & Mec. Fair Ass'n., Monticello, J. A. West, Sec.	Sept. 6-9
Macon, Callao Fair Ass'n., Callao, E. G. Jones, Sec.	Sept. 15-17
Macon, New Cambria Fair Ass'n., New Cambria, W. E. Howell, Sec.	Sept. 3-10
Marion, Marion Co. Fair, Palmyra, G. B. Thompson, Sec.	Sept. 9-12
Moniteau, Moniteau Co. Fair Ass'n., California, L. B. Meyer, Sec.	Sept. 2-4
Monroe, Monroe Co. Fair Ass'n., Paris, Penn. Brace, Sec.	Sept. 1-4
Montgomery, Montgomery Co. Agr. & Mec. Soc.	
Montgomery, Montgomery City, Geo. R. McVey, Sec.	Sept. 15-18
Osage, Osage Co. Fair Ass'n., Linn, L. M. Luckenhoff, Sec.	Sept. 1-4
Phelps, Phelps Co. Agr. & Mec. Soc., Rolla, W. T. Denison, Sec.	Sept. 15-18
Platte, Platte Co. Agr. Mec. & Stock Ass'n., Platte City, G. O. Johnson, Sec.	Sept. 2-4
Polk, Polk Co. Agr. & Mec. Soc., Bolivar, W. U. Townsend, Sec.	Sept. 1-5
Rails, Rails Co. Fair, New London, J. R. Rice, Sec.	
Randolph, Clark Fair Ass'n., Clark, R. R. Correll, Sec.	Sept. 2-4
Scotland, Scotland Co. Fair, Memphis, J. R. Hudson, Sec.	Sept. 1-4
Scott, Tri-County Fair, Sikeston, H. A. Smith, Sec.	Sept. 23-26
Shannon, Shannon Co. Agr. & M. S., Birch Tree, S. S. Whitlock, Sec.	Sept. 30-Oct. 3
St. Louis, St. Louis Co. Fair Ass'n.	
Upper Creve Coeur Lake, Geo. B. Bowles, Sec.	Sept. 17-20
Warren, Warren Co. Fair, Wright City, Wm. Heidtman, Sec.	Sept. 23-25
Wright, Third Annual Agr. & Stock Show, Mansfield, Ernest Coday, Sec.	Oct. 15-17

Horseman

Wahoo, Neb., the home of the Saunders County Fair, holds its annual fair on September 3 and 4, entries for which close on August 31 with Henry Pickett. The classes are 2:25 pace, \$250; 2:20 trot, \$250; 2:25 trot, \$250, and 2:15 pace, \$250. Records made on and after July 20 are no bar.

Britt, Ia., September 2-4, has arranged an interesting program for the annual Hancock County Fair, the classes for which are 2:25, 2:18 pacing; 2:18, 2:25 trotting, purse \$300 in each. Entries close on August 25 with E. L. McMillan. The track here is in splendid condition and a new brick barn has been built.

The Nebraska Short Ship Circuit, consisting of Geneva, September 16 to 18, Dr. I. W. McEachron, and Nelson, September 22-24, J. W. Lamb. The classes are the same at both towns, viz: 2:24 pace, \$400; 2:27 trot, \$400; 2:17 trot, \$400; 2:14 pace, \$400; 2:19 pace, \$400, and 2:22 trot, \$400. H. P. Wilson, Geneva, Neb., is circuit secretary.

Fairbury, Ill., is a member of a small circuit that follows El Paso, where the ships are short and three weeks good racing is guaranteed. Pi-

per City follows. The classes at Fairbury are 2:15, 2:20, 2:25 pacing; 2:27, 2:19 trotting; all for \$300 purses. There is also a free-for-all pace for \$400, and a 2:35 pace and a 3-minute trot for \$100 each. Entries close August 25 with W. E. Fulton.

Rochester, Minn., will hold its annual fair from September 2-4 and an out of the ordinary liberal program has been arranged by Supt. of Speed Theo. H. Tonelson. The classes will be 2:30, 2:20, 2:24 trotting; 2:15, 2:30 and free-for-all pace; the purses are \$300 each, except the 2:24 trot, which is \$250. Entries close on August 26.

Paris, Ill., August 21-September 5, has a splendid program of racing for the annual fair and the classes include 2-year-old and under mixed, \$200; 2:28 pace, \$350; 2:14 pace, \$400; free-for-all pace \$400; 2:20 trot, \$350; 2:17 trot, \$400; 2:23 trot, \$350, and number of novelty races. Entries close August 29 with W. B. Curtis.

Indianapolis, Ind., September 7 to 11, the scene of the Indiana State Fair, as usual, has a sensational program of racing for the annual fair. The classes included on the card are: 2:27, 2:15, 2:20, 3-year-old and under, 2:13, 2:24, 2:10, 2:17, 2:07 trotting; 2:15, 3-year-old and under, 2:25, 2:07, 2:17, 2:12, 2:09 and free-for-all pacing. The purses are all \$1,000 each, and the

conditions very liberal. The entries close on August 24 with Superintendent of Speed C. H. Anthony, Muncie, Ind., or Secretary Charles Downing, Indianapolis, Ind. The entrance fee is 5 per cent and the races decided on the point system.

El Paso, Ill., has a splendidly arranged fair, August 25-28, when the following classes will be on the card: 2:34 pace, \$150; 3-minute trot, \$100; 2:20 pace, \$400; 2:27 trot, \$300; 2:14 pace, \$400; 2:22 trot, \$400; 2:25 pace, \$300, 2:15 trot, \$400; free-for-all pace, \$400, and 2:17 pace, \$400. Entries close on August 18 with H. J. Tegtmeyer. This is followed by Fairbury and Piper City.

THE FULL USE OF FARM HORSES.

One of the principles of farm management is to "take time by the forelock," or, in other words, to keep up with the necessary work as closely as possible so that one may be better prepared for contingencies. A good illustration of the need for this is found in some data which the writer has gathered from a group of 28 farms at Conway, Ark. These farms have a little more than 1,600 acres in crops and have 84 work animals. It happened that the month of January, 1914, was warm and fairly dry. The mean temperature at Conway for the month was 45.4 degrees, and according to an average of 24 records kept by farmers there were only six work days during the month when the ground was not fit to plow; hence, there were necessarily 21 days when it was fit to plow, there being only four Sundays in that month. Under these conditions the farmer who

is always up with his work did much plowing, but many others did little or none. The amount of horse work on these 28 farms is expressed in the following table:

	Hours.
Crop work	4,462
Miscellaneous work	3,488
Total work	7,950

Crop work per horse	53
Miscellaneous per horse	41.5

Total work per horse

94.5
If we assume only eight hours' work per day there would have been 168 hours per horse available for crop during the month; hence the actual crop work performed was less than one-third of that which could easily have been performed. Indeed, this statement is hardly strong enough, as several of these farmers hauled manure from town on rainy days, as well as dry days, and this work was classed as crop work, since the manure was to be applied to the crops.

In the month of April there was much wet weather, and according to records from the same farms only one-half of the week days were available for crop work; hence those who had done no plowing in January were not only delayed in getting in their crops, but some of them were not able to plant as many acres as they intended. One farmer in particular spent January in hauling wood, receiving \$1.25 gross for a "jag" of wood that took one day of his time and half a day for the time of the team, and by reason of this he turned not a single furrow in January and was fearfully delayed in April.

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Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3½ yards of 44-inch material for a 10-year size.

9065—Ladies' Dress With Tunic Skirt.
Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches bust measure. It requires 5½ yards of 36-inch material for a 36-inch size.

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Cut in 3 sizes: Small, medium and large. It requires 5½ yards of 44-inch material for a medium size.

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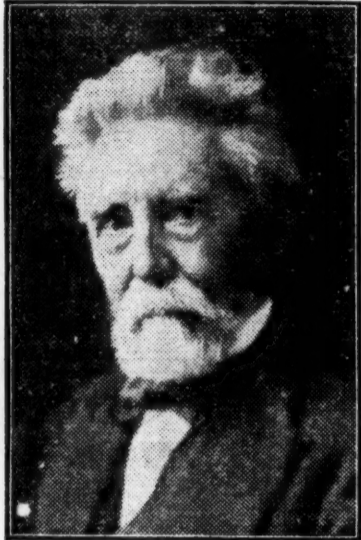
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Norman J. Colman,
First U. S. Secretary of Agriculture.

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Prices on sugar, beans and rice have increased steadily since the beginning of the war in Europe, despite threats of United States investigations. Wholesale grocers of St. Louis are agreed that the increase has in part been caused by the shortage in supply and the unusual demand on the United States from countries that formerly were supplied by the nations now at war. The price of sugar is said to be the highest in history.

Federal inspection of grain, so crushingly defeated by the senate last winter, may come as the result of the present agitation by the cotton state senators and representatives for Federal licensing and inspection of cotton warehouses. This was made evident today when the proposal of Senator McCumber, leader of the grain inspection advocates, that the same benefits should be extended to grain as to cotton, was acceded to by Senator Hoke Smith of Georgia, on the part of the cotton senators.

The Japanese were among the first to recognize the true value of an army medical corps, according to Dr. Louis Livingstone Seaman of New York, in a communication to the National Geographic Society at Washington, made public today. Dr. Seaman has made a world-wide study of contagious and epidemic diseases. He was with the Second Imperial army of Japan at the

front in Manchuria and is the author of many well known medical books and papers. "The Japanese medical officer is omnipresent," he says. "You will find him in countless places, where in an American or British army he has no place. In the Russian-Japanese War he was as much in the front as in the rear. He was with the first screen of scouts with his microscope and chemicals, testing and labeling wells so the army to follow should drink no contaminated water."

Some folks have had early corn several days in advance of their neighbors because they started it in paper pots or boxes in the cold frame. Many garden vegetables may be successfully treated in this way.

Where is all the raw material coming from for the vast amount of powder that will be needed in the great European war? That is a question that South America can answer, according to a news note in the July number of the monthly bulletin of the Pan-American Union, Washington. Strange to say, the one country in the world which in times of peace supplies the greatest agent to increase the productivity of the earth, will now be called upon for identically the same agent to supply the means of destruction. That country is the republic of Chile, and the product which has now assumed such tremendous importance is the nitrate of soda which it supplies to the world. The nitrate fields of Chile form a wonderful asset in the national economy, and this news note states that the government will sell at public auction, August 10, in the city of Santiago, certain nitrate lands in the Province of Tarapaca, thus opening up for development additional areas containing this remarkable product.

WAR A DIRECT BENEFIT TO UNITED STATES.

"A direct benefit to the United States from the European war will be its effect in making the people of this country realize to a greater extent the value of its mineral resources," said Franklin K. Lane, Secretary of the Interior, in an interview today. "It is entirely possible to so utilize these resources and expend our industries that the label 'Made in America' will become familiar in our own and foreign markets."

"Of an importance second only to that of the food supply," said Mr. Lane, "is the supply of mineral products necessary to meet the requirements of twentieth century civilization. One of the first effects of the war has been to make us realize the interdependence of nations in the matter of food supply. Most of the countries now at war are dependent upon importation of foodstuffs, and we have cause for self-congratulation in the United States that we are able to feed ourselves. What we possibly have not so fully realized is that we are nearly as independent in the possession of essential mineral resources, and that the interference with manufacturing caused by interruption of the flow of importations of many necessary raw materials, may be overcome almost wholly by development of neglected resources in our own country."

"Do you mean," Mr. Lane was asked, "that the United States can make itself independent of the rest of the world in its manufactures?"

"Very largely," asserted the secretary. "The main difficulties to be overcome are in the rearrangement of the distribution system necessary to establishing this independence. Business is established along certain well-marked channels, and usually follows the line of least resistance. It has been easier, and perhaps cheaper, to import mineral products and materials from other countries than to go to the trouble and expense of developing our own resources of the same nature. Forced to the latter course by suspension of commerce with other countries, I believe that American enterprise and energy will almost at once turn to the development of the native resources, rather than permit production to lag and supply to be diminished in any industry."

"For the maintenance of agriculture, for instance, we rely more and more largely upon mineral fertilizers. The

three essential plant foods are potash, nitrogen and phosphorus, the latter used generally in the form of phosphates. We have depended, with the rest of the world, very largely upon the mines of Germany for our supply of potash salts, and war has cut off this supply, but we have large deposits of potash in a California reserve which can be immediately opened and developed if a bill now before congress to make these supplies available is enacted. Chile holds a practical world monopoly of the most readily available nitrogen in its great nitrate beds, and not only the manufacture of agricultural fertilizers, but also of many kinds of high explosives, have been made dependent upon the Chilean supply of nitrates. If this supply should be cut off, a new supply would have to be found or manufactures and agriculture would suffer. Fortunately this new supply is at hand. We can draw nitrogen from the air and fix it with lime by the use of large and cheap electrical development, as is done at Niagara Falls and in Norway, and all that is necessary to pave the way to this electrical development is the passage of congress of the Ferris bill now pending, which will make possible the utilization of the great unused water powers of the western states.

"The southern states have for years largely supplied the world with phosphates, but because of the distribution system, a large part of this supply has gone to Europe, and much of the phosphates used in the western states have been imported across the Pacific. We have some 3,000,000 acres of phosphate lands in the west lying near the smelters from which is produced the sulphuric acid necessary to convert these phosphates into form available for plant food, and still there is no law by which these phosphate deposits can be made commercially available, although a bill which would allow of their immediate development has been favorably reported by the Public Lands Committee of the House of Representatives, and is awaiting the approval of the House and Senate."

"Will these resources be developed if these laws are passed?" the secretary was asked.

"Of course they will," he replied. "You can depend upon American enterprise and ambition to make good when it is given an opportunity. At present these deposits and resources are locked up out of use. To open them to use when the supply from other countries is cut off means to make American industries using these materials independent of the rest of the world, and business men will not neglect the opportunity to make our industries safe from the interruptions of war we are now experiencing."

THE LOAF OF BREAD.

The wide-spread propaganda for the purity of the food and drug products of this country has resulted in the necessary attempt to standardize all articles which enter into these categories. In the case of certain familiar materials like sugar and coffee this has not involved any formidable difficulties. The question as to what constitutes mince pie, on the other hand, has aroused storms of claims and counterclaims on behalf of the recipes of different regions and generations. Like numerous other illustrations which might be cited, this experience has served to call attention to the really great diversity of our food concoctions and the pardonable laxness in the use of current terms that appear in the American menu. One may well apply here the proverb: *De gustibus non disputandum est*.

It might be expected that so common an article of diet a bread would exhibit some uniformity of composition. Yet the chemist of the Connecticut Agricultural Experiment Station reports that 200 loaves of bread, representing the product of 79 Connecticut, one Springfield (Mass.) and three New York bakeries "showed wide variations in all their ingredients." For example, the moisture content ranged from 27 to 40 per cent, so that in some instances the bread contained excessive amounts of water. The fat present also showed a wide range, from 0.08 to 4.37 per cent. These differences are largely due to the methods of the bakers. In some cases only flour,

yeast and salt are used, while in others milk, butter, lard and sugar, either alone or in combination, are employed. The variations in fat are also due in part to the fact that in the process of baking a part of the fat is destroyed. In some samples the amount of fat found is much lower than could have resulted from the use of any brand of flour.

A comparison of the variations in a 5-cent loaf of bread is interesting in other directions also. The actual amount of dry matter per loaf in the Connecticut samples ranged from 7.9 to 12.7 ounces; the average weight of the loaf in nine cities ranged from 12.9 to 15.2 ounces. The cheapness of the 3 and 4-cent loaves indicated a real saving, as far as quantity is concerned, because the decrease in price was greater than the decrease in weight. As the price of a loaf of bread has remained stable at 5 cents, while the cost of the ingredients has increased, changes in the real cost of the nutrients of bread must be sought in the changes of size or composition of the loaf. According to investigations made in New Jersey in 1895, loaves costing 4 and 5 cents weighed from 12.7 to 21.8 ounces, average 16.4 ounces. In 1895 in New Jersey 58 per cent of the 5-cent loaves weighed over 16 ounces, and 83 per cent over 15 ounces, while in 1912 in Connecticut only 7 per cent weighed over 16 ounces, and only 16 per cent over 15 ounces. Assuming similar conditions in these two states, the average weight of the 5-cent loaf has shrunk since 1895 from 16.4 to 14 ounces, or 15 per cent. When all has been said, observes the Journal of the American Medical Association, the student of nutrition will doubtless still remark that bread is cheap at any price.

RURAL FLY WORSE THAN CITY FLY.

Death or disease caused by flies is confined chiefly to rural districts, says Dr. H. W. Hill, executive secretary of the Minnesota Public Health Association. The house fly never bites like the stable fly, but carries germs on his legs and feet and leaves them lying about in fly specks. He does little harm in the city or village that has a good sewage system, because in well-sewered communities the dangerous discharges which the fly might carry to food are largely taken away by the sewers, which the fly can't get into.

In the country this matter is left in outdoor closets. No harm would follow if the closets were fly-proof, but too often they are not. The result is that each summer there is carried to the food of the country dwellers material from outdoor closets. If typhoid or dysentery germs are put into the closets by sick persons—strangers, or others—then the flies carry those germs to the food, just as they would carry anything else put there.

To fly-proof an outdoor closet, adds Dr. Hill, see that the house and the ground are in contact all round. Bank up the building with a few shovels of earth to secure this if need be. Then cover knotholes and cracks with boards, shingles, anything a fly cannot get through. Put fly-net or wire screen over ventilators or windows. Finally put a spring or weight on the closet door to keep it shut. Then when you find a fly on your food or in your milk, you will know one place that fly did not come from.

HEAVEN OF HEAVENS.

Editor Rural World: The inspired writers in many places speak of heaven and the heaven of heavens, and I want to advance some ideas in regard to this expression, as it is likely that a good many people fail to comprehend the meaning and importance of the expression mentioned above. The inspired penmen were only the amanuenses of the Divine Spirit, and they were directed to such language as was accordant with the Divine economy and with the facts existing in the universe, and it is most likely that they were not aware of the grandeur of those objects to which their expressions referred. The inspired Book was written to direct men to the path leading to everlasting life, and it was not God's intention in those pages to reveal the wonders of the science of astronomy to human be-

ings, as it would be more in accordance with infinite wisdom if man should learn by hard study and deep reflection of the hidden wonders and glories of the celestial kingdom, and this work could best be performed gradually as the centuries rolled away, and also during the periods of an interminable future existence.

Let the reader turn to the sacred writings, and in the book of Nehemiah, 9th chapter and 6th verse, he will find the expression, "Thou hast made heaven, the heaven of heavens, with all their hosts." By "heaven" is here to be understood the visible firmament viewed telescopically, and as man is acquainted with it. Perhaps some critic might claim that telescopes were not invented when God dictated words of inspiration to those holy men of old, but the Scriptures were written for the purpose of instructing people at that time, and also at all future periods of the earth's history. The term heaven in this case constitutes the visible firmament, for this is the sense in which the term heaven is generally taken when God is represented as its Creator. The word heaven often means the place of the redeemed in a future scene of existence, but that is by no means the meaning of the word in this case. "Thou hast made heaven, the heaven of heavens, with all their hosts." The "heaven of heavens" is an expression which is worthy of particular attention, and evidently includes in it an idea far more extensive and sublime than what most readers generally attach to it. It evidently intimates that, far beyond the visible heavens known to man, there exists a region of space of immense proportions? that is filled with stars and star systems that stretch away on every hand towards infinity. This portion of the Divine empire is likely far more grand and magnificent than that portion our best telescopes reveal. The inventive genius of man may yet find a way to make some grand discoveries there, but the glories and sublimities of those immense regions will no doubt be reserved by the Deity for study and investigation by mortals in a future scene of existence.

Beyond the boundaries of all that will ever be visible to the inhabitants of our globe, an infinite region exists, in which we have every reason to believe the Deity sits enthroned in all the grandeur of his overflowing goodness and omnipotence, presiding over innumerable systems of worlds, far surpassing in magnificence what "eye hath yet seen," or the most brilliant intellect can conceive. We learn from the sacred writings that God has "established His throne in the heavens," intimating that it is in those higher and more expansive regions that the principal arrangements of His government have been made, that the beneficence and rectitude of his character are manifested, and that the grandeur of His moral administration is most extensively displayed. It is in "the heaven of heavens" then that the seat of government or capitol of the Divine Empire is located. That portion of the starry heavens which man is totally unacquainted with, there is by far the most magnificent and glorious part of creation. The inspired writers often speak of the exaltation of God and of the glories of His kingdom, but there cannot be a kingdom without subjects, and as the multitude of subjects constitute the chief glory of a kingdom or empire, so we must necessarily admit that all the provinces of this celestial kingdom are replenished with inhabitants, or, in other words, subject of the Divine government, for a kingdom that contains only vast masses of inanimate matter, without life or intelligence, cannot with propriety be entitled to the designation of a kingdom, nor could such a kingdom be denominated as glorious. I might quote many passages of Scripture in confirmation of the fact that the Divine glory is inexpressibly displayed far beyond the visible universe. But if those celestial bodies accomplished no end corresponding to the extent and grandeur of the means employed, in their construction, and if those worlds are nothing but interminable deserts and desolate wastes, scenes of eternal silence, solitude and desolation, where prayers and praises and thanksgiving are unknown, and where there are no

intelligences capable of rendering grateful adoration to the Divine Being, then those worlds are useless, and they were created in vain.

Inspired men have told us that the heavenly hosts worship God, we understand from this that beings of capacious intellects dwell upon those worlds, and that they adore their Creator, and that they are capable of appreciating His wisdom, power, beneficence and goodness. We learn something of the character of those celestial beings then, and that they are possessed of knowledge similar to that of terrestrial beings. As variety is stamped on all of the works of the Creator, we have reason to believe that there are various orders and gradations of intelligence among the beings who inhabit those innumerable and far distant orbs. The intellectual faculties of the beings on those worlds may be irritated to a wonderful degree. There is a great gap between God and man, and some eminent astronomical scientists who are well versed in theological matters, think that this

gap is partly filled with intelligences of a far superior order to terrestrial beings, and such reasoners also advance the idea that there are comparatively but few fallen worlds in the universe. Our world is small and of inferior construction, and God foreknew that our race would be unable to retain their primeval rectitude and innocence, therefore the earth was not formed to become the abiding place of beings possessed of immortal bodies, but it was so constructed as to be a suitable abiding place for perishing mortals, and notwithstanding the fact that its surface is adorned with numerous objects of sublimity and beauty that most of them at least, are investly, yet it can only be considered as little more than a majestic ruin, a ruin, however, that is accommodated to the character of most of its inhabitants. Death is a natural result on a world of such defective construction.

It is doubtless, the case with the celestial intelligences that their numbers correspond with the amplitude of the regions which they occupy, and

ed with the attribute of moral perfection, and that they are adorned with the beauty of holiness, where universal love will forever prevail, and where the enjoyment of uninterrupted felicity will forever be their portion.

We learn in the Bible that God has established His throne in the heavens, but there are many figurative expressions in the Book, and we are not certain whether that throne would be visible to the eyes of mortals if we should be permitted to visit the portals of glory. Most men, I presume, intuitively consider the expression as mythical and figurative, but there are eminent theologians who believe that there is an actual visible throne located in the center of the universe. I have never given the subject much attention, and have carelessly considered it as a figurative expression, but I intend to reflect upon the subject in the future and try to get some information in regard to the matter, and I think it would be well if we could arouse some enthusiasm as to the subject.

J. M. MILLER.

Get These Three Dolls

In every home where there are little girls or boys there should be plenty of dolls to make the little folks happy—and I will make it easy for you to get them.

Every little girl or boy will love Anna Belle and her two baby dolls. The illustrations on this page do not begin to show to you what these dolls really are. This is by far the prettiest family of dolls we have ever offered our readers. We have sent thousands of dollies to girls and boys, but Anna Belle is different and prettier than all others. Anna Belle is bigger than a baby—over two feet high—baby clothes will fit her and you can bend her legs and arms without fear of breaking them. She can sit up in a chair or sleep in baby's own bed. Any little girl or boy would be proud to have Anna Belle as a playmate. The two smaller dollies are "Buster" and "Betsy"—Buster is a husky boy doll with a red striped sweater; "Betsy" is a little beauty and very lovable in her bright red coat. Both the little dollies are fully dressed.

The Best Playmates

Any child will be greatly amused with this doll family and will play all day with Anna Belle, Buster and Betsy. They are practically unbreakable and will stand hard usage for years. These dollies are better for the little folks than bisque or china dolls, because they won't break, soil their pretty hair or lose their eyes, and are so inexpensive every girl or boy reader can afford to own them.

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Every little girl wants a big doll. Little boys also. Think of the innocent happiness and pleasure your child would derive from owning these three dolls. Then satisfy the craving for something to love and something to play with by sending for this outfit.

Lots of Fun

to be had with these three dolls. The little girl or toddling boy who owns these dolls will just be the happiest little tyke to be found for miles around. The big little girl who owns Annabell can dress her in her own clothes and have the loveliest time! Then the baby dollies—to cut and sew for—what could be more instructive and entertaining?

Don't Miss This Opportunity

Every little girl or boy wants a big doll—here's an opportunity to get three dollies instead of one. Just think what fun it would be to have a doll family in your home. Think of the joy and happiness of the little ones when they get this delightful set of three dollies.

Special 30-Day Offer

To introduce this big collection of dolls we will send one complete set (3 dolls) to you if you will sign the coupon below, and return it to us at once with 15 cents. If you are not entirely satisfied when you get the dolls we will return your money. Most dolls are imported and there is going to be a great scarcity this year, so we advise you to order early.



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People's Supply Co., St. Louis, Mo.

Enclosed is 15 cents (stamps or coin) for which send me one set of dolls as advertised.

Name

P. O. State

Horticulture

SWAT THE ARMY WORM.

Several places in the state of Texas have reported that the army worm is beginning to be troublesome, although no serious damage has as yet occurred, and the Texas Industrial Congress following its custom when unfavorable conditions are noted in its reports of local crop conditions over the state, has sent suggestions to the farmers of those sections as to the best means of exterminating the worm. The congress is now in receipt of information from the United States Department of Agriculture that there is a general outbreak of this pest in the northern states east of the Rocky Mountains and in other sections of the country, and that the worms have apparently swarmed from the Southwest. It appears advisable, therefore, to send the following to the press of the state for general publication:

As the army worms travel usually in one direction, the farmer whose crop is threatened may plow a furrow around it with the perpendicular side toward the field to be protected, and drag a log along in the furrow from time to time to keep the soil loose and dusty and kill the worms which have accumulated in the ditch. This with poisoning thoroughly half a dozen outside rows of the crop with one pound of arsenate of lead to 50 gallons of water will answer the purpose. The heavy use of Paris green or London purple for poisoning is sure to injure more or less the foliage of the plants, and is not recommended unless the arsenate of lead cannot be secured.

Where farms are carefully and cleanly cultivated and not near to waste or swampy land, damage will not often be sustained. Deep fall or spring plowing to break up the underground homes of the larvae or young moths with the burning off of the old grass land near the fields will generally prevent a start. Of course, the preventive methods are best because there are four or five and sometimes six generations of these worms in a season.

Where the worms are already damaging a cotton field they may be poisoned by scattering a loose dough made of one pound of Paris green to a bushel of wheat bran thoroughly mixed and moistened with sufficient water, to which has been added a quart of molasses. This mixture should be scattered at the foot of the stalks late in the evening and care taken to keep chickens and livestock away from it. It should be remembered that arsenate of lead, Paris green and London purple are deadly poisons and that these mixtures must be kept away from children.

THE WOOLLY APHID OF THE APPLE.

The woolly aphid is one of the most insidious and dangerous of apple pests. It occurs on the roots and above ground, also on the branches. The branch form can be easily controlled by contact insecticides, but it is practically impossible to stamp out the aphids on the roots.

Winter weather of Eastern Washington is usually severe enough to destroy what individuals are above ground, so that developing colonies in the spring come from wingless aphids of the roots or crown. These aphids are apt to locate on a bruise of the bark and soon become conspicuous because of a growth of "wool." Their feeding poisons the tree and results in a local swelling and ultimately in a weak tree with small-sized fruit. After a couple of generations some winged individuals appear which migrate to other apple trees, thus spreading the pest. The summer generations are less vigorous, and in early fall other winged migrating individuals are produced. These rarely seek apple trees, but are attracted to wingless sexual aphids, the females elms, if near by, and there give birth of which produce a single egg, which is laid for the winter deep in a crack of the bark. The following spring the insect inhabits the leaves of the elm, forming rosettes of curled leaves. Its third generation is the winged spring

migrant that returns to the apple tree.

The woolly aphid is prevalent on nursery stock, and thus gets access to a new region. Apple stock showing swellings or galls should not be planted, and elm stock should be carefully searched for black eggs. When the woolly aphid occurs above ground it can be destroyed by a light swabbing of alcohol, gasoline or kerosene, or if numerous, by a spraying of tobacco-soap, such as is given for green aphids. The underground form can not be effectively reached and is consequently most dangerous. Kerosene emulsion, sulphur-lime or an abundance of tobacco dust applied to the roots have been recommended, but give only partial benefit. Plowing and cultivation to force the roots down are thought to be helpful since the aphids do not thrive much below a foot. Northern Spy trees are remarkably free from attack, and such stock would prove valuable in a badly infested district. The woolly aphid is too delicate and weak to force its way through the soil, but it will work along cracks and roots and thus spread through the orchard or nursery row. To prevent branch infection from below, the trunk may be banded with equal parts of rosin and castor oil melted together and applied on burlap or cotton strips, or if in a dusty district where this method would be inapplicable, it has been suggested to pack around the trunk of the tree a good layer of sand through which the aphids cannot crawl.—A. L. Melander, Entomologist, Experiment Station, Pullman, Washington.

PLANTING TREES AND SHRUBS.

All trees or plants should be carefully examined before planting to make sure that the roots are healthy and unbroken. If any of the roots are broken the injured places should be trimmed off with a sharp knife and the ends of all the larger roots should be cut off.

Any excessively long roots should be shortened back to such a point that they will throw out plenty of smaller roots.

Roots that show evidence of "crown gall," a prominent watery swelling, should be thrown away. Such plants should never be planted, and it is against the law for nurserymen to sell them. Sometimes apple trees will show a number of small, grayish, woolly insects on the roots. These are the woolly aphids of the apple and should never be planted. Trees that are infested with them should be burned. It is also unlawful for nurserymen to put out trees infested with this insect. Many of them do not pay much attention to this law, however.

DON'T SUMMER PRUNE RASPBERRIES.

The raspberry plant finds an especially favorable climate in most of the state of Washington. The crops produced are usually far above the average for the United States. The plants are extremely vigorous and productive and the quality of fruit produced is the best.

The practice of summer pruning followed in the eastern states does not seem to be well adapted to this plant when grown in the Northwest. The vines grow tall, often reaching a height of seven to nine feet, and if cut back in the early summer, will branch and send out good strong limbs. If pruned a little later in the summer the tendency is to cause the vines to winter kill and suffer to such an extent that the crop is greatly lessened the following year.

Tests along this line at the State College of Washington indicate that the best returns will be obtained by giving thorough, clean cultivation and doing all of the pruning in the winter time. All of the summer pruning done has resulted in injury to the plants. Some growers report fair success with summer pruning, but the general indications are that summer pruning will result in injury to the plants, while in a very few cases it results in a definite benefit to the plants or to the crop produced.

Where summer pruning is done the best system is to cut off the top bud when the vines reach the height desired. This will cause them to send out lateral branches. If the work is



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done early enough and the latter part of the season is dry enough, the side branches will mature and suffer very little from winter injury, but if the work is not done early and the land dried sufficiently to stop growth, winter injury will result. Some patches have been practically killed by the late summer pruning.—O. M. Morris, Horticulturist.

ORCHARD AND GARDEN NOTES.

Iris may be transplanted now to good advantage.

Country Gentleman and Stowell's Evergreen sweet corn should be at their best in late August.

Rosa Rugosa hips are beginning to turn and many of the maples are adding color to the landscape.

Lawn grass may be sown now or early in September, provided the ground is moist enough.

Geraniums and other plants that are to be kept in the house this winter must be taken up in September.

Highbush cranberries are about ready for jelly. This plant is coming more and more into favor, both as an ornamental shrub and as a jelly supply.

Onions should be harvested and put on the market as soon as possible. Pull and throw three or four rows together to dry and then clean, and market in 100-pound sacks.

County fairs are beginning. Exhibit some products. It helps make the fair a success and makes you more observing. The fair will mean more if some of your best produce is there. There is also a satisfaction in beating the other fellow at his own game.

As soon as the leaves fall make hardwood cuttings of the currant about eight inches long, and plant them in the garden. They should become well rooted by winter.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

The Pig Pen

SUMMER SUGGESTIONS FOR HOG RAISERS.

Mr. Edwin Houston, of the advisory board of the Texas Industrial Congress and secretary of the Texas Swine Breeders' Association, has given the congress the following suggestions for the benefit of the hog raisers of the state:

Don't let the hogs that are being kept over this summer get thin, and then wait until fall before feeding commences. When this is done the little feed that is given is used entirely to maintain the natural functions of the body and none of it is left to make gains with. One would be as well off by throwing the little feed he does use into the creek and buying hogs when he does get ready to feed them. Keep all the hogs on the place busy. Let them all be growing, fattening, or producing young. This is a business in which you can't stay still; every animal is either losing or gaining money for its owner. The idle hog like the idle man is ruinous to the farm. Check over each animal you have and see that it is worth keeping.

The dirt or concrete water hole is of great value in Texas during the hot months and enables the pork producer to keep his herd in very high condition without them suffering or being in danger of overheating. If crude oil is used in small quantities on the water holes the hogs will dip themselves every day and keep free from lice and will be in very little danger of screw worms from the small scratches that they get. Crude

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oil is a better lice remedy than any of the patent dips because it stays on the hogs longer.

Corn, that is in the roasting ear stage, if fed now, will give excellent returns. Feed stalk and all and start the hogs on a little and increase daily until they are getting all they will clean up. One will get more food value out of his own corn this way than after it has gotten dry because when the stalk dries out it loses nearly all its feeding value and all of its palatability as far as swine are concerned.

Sorghum cane is about our surest and most abundant hog pasture during the Texas summer. Animals can either be turned in on it when it is about six inches high and kept on it all summer or it can be cut by hand every day and fed over the fence. Either way it will be found to help the herd wonderfully, and though the chemists tell us that it does not analyze high in food content, still it will maintain the herd in fair condition and what grain is fed will be used for making gains exclusively.

Variety is a great asset to any ration in feeding hogs. It keeps the hogs from getting tired of their food. If two different feeds are used both have approximately the same feeding value, they will make greater gains than if the same quantity of either one of the feeds were given, and if these feeds are used they will generally do more good per pound than two. The way to furnish variety, however, is to give all the different feeds as a mixed ration at each meal and not make radical changes from one feed to another. Regularity and uniformity of feeding are of incalculable value in the hog business.

For maximum results feed twice a day to stock weighing 100 pounds or better and let these times be late in the afternoon and early in the morning when it is cool. Young pigs do better if fed three times a day.—Bulletin No. 12, Texas Industrial Congress.

MOONLIGHT AND LOVE.

By Goose Quill.

How sweet tonight the moonbeams fall
down o'er the sleeping valley,
How it doth cheer my very soul and
cause my heart to rally
Round former nights when heavenly
lights in harmony, were blend-
ing.

Too sweet the past to ever last, but
oh, too sad the ending.

O, harvest moon, too soon, too soon
you'll quit the dreamy way,
Like her I love you'll steal from above
and vanish with the day,
But in thy flight, thy mellow light, like
soft rays of her eyes,
Will linger long like some sweet song
of her that never dies.

O, harvest moon so soft and sweet you
tread the milky way.
You mind me of her sylph-like feet
that tangled in the hay;
You mind me of her golden hair, all
tousled up in waves;
You mind me of her melting eyes o'er
which the poet raves;
You mind me of those sleepless nights,
and those of dreamy days.

You mind me of the sweet old time,
and of the sweet old way,
When she was young and to me sung
in simplest heartfelt lays.

O, harvest moon how soon, how soon,
this message by you I'm sending,
May reach her ear, that she may hear,
how sweetly sad the ending.

HOT AIR AND CHARITY.

By Goose Quill.

I never saw a public road too good
for me.

Since 1905 my business has taken me
over hundreds of miles of good and
bad roads.

But I am not very optimistic about
good roads in Missouri under the pres-
ent road building system.

Hot air and charity won't make
good roads, there must be an organ-
ized force and revenue at its back.

Those who never donated an hour's
work on the roads will preside as
toastmaster at some good road spread
and expand his lungs and pant and
puff after he has filled up on the good
things there prepared for him and fill
the poor fool farmer on hot air.

Tells him go right in for good roads
and to donate his services for his
country's sake. This is charity. This
is beggary and undignified. Let the
farmer and his team get paid for every
hour spent on the road. Let the work
out by contract. Let the contractor
hire men at honest wages and we will
have a rest about donations and hot
air road building. This system of
contract road building prevails in Colo-
rado and Washington. I never saw
better roads and never heard less talk
of roads as I did there. The farmer
is more interested in some scheme to
attract the moisture from the arid
skies. Talk to him of an irrigating
system at a moderate expense. Talk
to him about building ponds and re-
servoirs to hold the water and attract
more.

Tell him where to get help to carry
him over these series of drouths and
get his feed and seed. Give us a rest
on the road until we raise something
to haul over it. Don't tell us crops a
bumper and country is prosperous or
we will say as the old colored brother
did to his pastor. Who made a very
fervent and elaborate thanksgiving
prayer following a severe drouth:

"Brudder Bob, didn't you thank the
Lord for bounteous crops and good
times?"

"Yes."

"Didn't you thank him for dat wine
you drank and de turkey you et?"

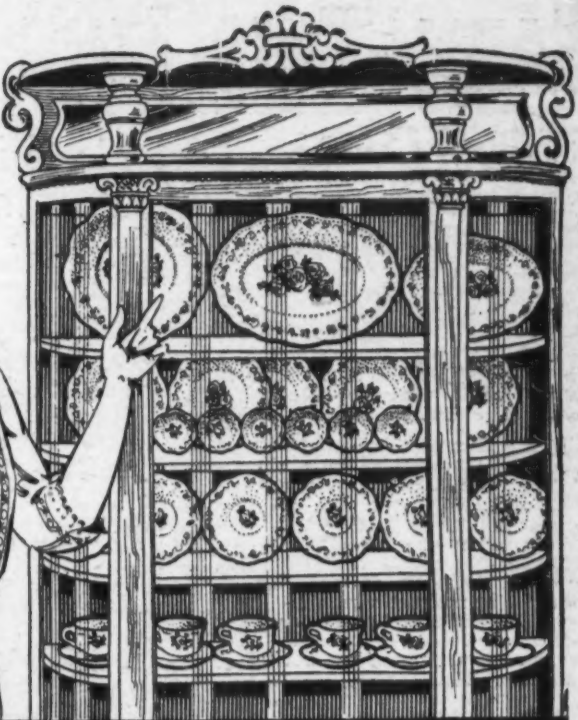
"I did."

"Well, the good Lord knows it am a
dam lie. There hasn't been a spoonful
of water at my house for eight months,
an' I stole de turkey and confiscated
de wine."

The globe tomato is a good one for
the garden, although it is not as early
as a good strain of Earliana.

In two years French florists changed
the violet into a two-foot tree, carry-
ing 25 to 300 flowers throughout the
year.

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The complete set of dishes con-
tains 33 pieces.

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The beautiful, dainty American
Beauty Rose decoration is the most
popular design ever offered our read-
ers. The bright red roses and the
rich green foliage stand out clear
and brilliant in the center of each
piece, and to make the effect even
more charming a rich gold border of
gold is run around the edge of each
dish, thus giving the complete set an
individuality and attractiveness not
found in other dinner sets.

Will Last For Years.

The dishes are made of pure white
ware, and are for hard usage as well
as beauty. They are stronger and
bigger than most dishes and with or-
dinary care will last for years. They
will not glaze or get streaky like
most dishes and the rose and gold
decoration is burnt into each piece
and will not wear off.

You could not wish for a more com-
plete set of dishes than this—33
pieces.

Made by a Famous Pottery.

Any woman will be proud of our
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which is complete and beautiful. They
are for every-day usage as well as
for Sundays, and are the product of
the famous Owen China Company, of
Minerva, Ohio. We guarantee them
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The coupon starts everything. Sign
it and we will send you a large illus-
tration in colors, showing this beau-
tiful Dinner Set with its handsome
decorations of red, green and gold.

We will also send you a sample
needle case, containing 100 different
needles for every purpose, and 15
darners, bodkins and large needles—
a total of 115 needles.

Our Dish Plan Is So Very Easy.

When you get this handsome needle
case I want you to show it to 16 of
your neighbors and friends and get
them to hand you 25 cents each in
connection with a special offer I will
tell you about when I send you your
needle case. When you tell them
about our great offer they will thank
you for the opportunity to help you.
Each person who hands you 25 cents
is entitled to a complete case of these
famous needles. I will send the needle
cases to you so you can hand them
to your friends when you tell them
about our offer. In addition to the
needle case each person also gets a
special subscription to our big farm
paper.

You Will Be Surprised.

You will be surprised how very,
very easy it is to get this set of dishes.
No previous experience is necessary.
When you get your dinner set you will
be delighted and all your friends will
envy you.

It is so very easy to get this set of
dishes that many of our readers earn
two, three and even more sets, and sell
the extra sets to their friends at a
big profit. Now, if you haven't already
signed the coupon below, do so before
you forget about it.

Sign the coupon—it starts every-
thing.

41 EXTRA
ARTICLES FREE

Our plan is full of SURPRISES and
LIGHTS for those of our friends
who are willing to lend a helping hand
at spare times.

The very first letter you get from
us will surprise you before you open
it. It will also delight you by telling
all about the big 40 piece post card
collection which we want to give you
in addition to the dishes. We give
you the 40 post cards for being
prompt.

These beautiful post cards will not
only please you—but they are so rare
and attractive and printed in such a
gorgeous array of colors that you will
be delightfully surprised.

Another Present for Promptness.

And still, THAT is not all. One of
the prettiest surprises of all is kept
a secret until the day you get the
dishes and find a pretty present that
you know nothing about.

Isn't this a fascinating idea?

And what makes it more so is that
we have something nice for everyone
of your friends and neighbors, too.
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we receive the coupon with your name
on it.

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Coupon
Today

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I want to get a 33 piece dinner
set and the 41 extra gifts. Send
me the sample needle case, picture
of the dishes in color, and tell me
all about your big offer.

Name

P. O.

City, State, and Zip

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THIS BIG VALUE 7-BAR BOX
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for Only 50c



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WE will send this handsome oak desk and 25 boxes of our 7-Bar Assorted Soap to any responsible person who will agree to sell the soap for 50 cents per box and remit \$12.50 to us within 30 days. Don't send any money unless you want to—just mail the coupon below, giving names of two business men of your town, and if satisfactory, we will send soap and Desk Bookcase at once.

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Anyone can quickly and easily sell 25 boxes of this soap and earn one of these really fine desks. C. & R. Soaps are full value, full size cakes and sell at sight. These soaps are high grade. After selling the soap and sending us \$12.50, you keep the desk as your reward. Absolutely no risk, as we take back everything if you do not feel satisfied with offer after goods arrive.

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Address.....
Postoffice..... State.....
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Reference..... Business.....

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Beautiful oak desk in golden gloss finish; Desk part fitted with pigeon-holes as shown; has large top shelf, broad writing bed and carved top. Bookcase below desk compartment. Very convenient and practical. We supply rod, but no rings or curtains. Height, 55 in.; width, 30 in.; Shipping weight, about 80 lbs.

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From the Producer To the Consumer

COMMITTEE APPOINTED TO PUSH NATIONAL MARKETING CON- FERENCE.

To forward the educational movement for the marketing of farm products and the securing of easier money for farmers, the general committee of the National Marketing Conference has been appointed by President Frank L. McVey of the University of North Dakota. President McVey was the chairman of the business sessions of the organization at its second annual conference in Chicago last April and was charged to find a committee of representative citizens closely identified with farm life to carry on the work of federating farmers and consumers' organizations.

The committee consists of M. R. Myers, Chicago, Ill., editor American Co-operative Journal; Charles S. Barrett, Union City, Ga., president Farmers' Co-operative and Educational Union of America; Gifford Pinchot, Philadelphia, Pa.; L. D. H. Weld, Minneapolis, Minn., chief of Bureau of Agricultural Economic Research, University of Minnesota; Lou D. Sweet, Carbondale, Colo., farmer and financier; Herbert Quick, Berkeley Springs, W. Va., editor Farm and Fireside; Frank P. Holland, Dallas, Texas, publisher Farm and Ranch and Holland's Magazine; E. P. Harris, Montclair, N. J., president Montclair Co-operative society; E. M. Tousley, Minneapolis, Minn., Right Relationship league; H. C. Sampson, Spokane, Wash., secretary-treasurer, North Pacific Fruit Distributors; Charles McCarthy, Madison, Wis., chief Wisconsin Legislative library; Clarence Poe, Raleigh, N. C., president Progressive Farmer Publishing Co.; James C. Caldwell, Lakefield, Minn., president First National Bank of Lakefield, farmer; Henry Wallace, Des Moines, Ia., publisher Wallaces Farmer, former chairman Country Life commission; John Lee Coulter, Nashville, Tenn., department for training agricultural leaders, Peabody College; Frank L. McVey, Grand Forks, N. D., president University of North Dakota; Charles W. Holman, Madison, Wis., editor University of Wisconsin Press Bureau.

The committee has organized and elected F. J. McVey chairman, Charles McCarthy, treasurer, and Charles W. Holman secretary.

AGRICULTURAL CO-OPERATION.

Conditions of Its Success.

By B. H. Hibbard, University of Wisconsin.

Co-operation Defined.—By co-operation is understood the working together of a number of persons for some common end. Literally, it may mean a working together in an unorganized way. For example, two farmers exchange work, or they unite their efforts in breaking the road after a snow storm. These are undoubted examples of co-operation. So also is it a kind of co-operation which brings men together in the processes of manufacture. One group of men digs the ore, another transports it, a third reduces and refines it, and so on to the final process. These men, however, are not members of a company in the management of which they have a voice. They are not doing the work for themselves. Their co-operation is on the basis of a contract and their reward is a stipulated sum. In the case of the owners of the business, the return is in form of interest, rent, or profits. In this form of organization the rewards are on the individualistic basis, and in proportion to labor performed, land owned, capital invested or some business advantage. In the management of the business the voting strength of the proprietors is ordinarily in proportion to the capital owned by each.

In the co-operation with which we are here concerned the business is owned and run by the group among whom the rewards are apportioned, whether on the basis of capital contributed, business transacted or labor performed. The distinguishing feature is the ownership of the business

not as wage earners or as investors, but as buyers, sellers, producers, or consumers; all on a par. In other words, the co-operators constitute a class, and are not representatives of several classes. For example: the group may consist of farmers who are either sellers or buyers, or both; or possibly as breeders of stock or grain; or yet again as manufacturers. In every case, however, they are banded together for the common purpose of doing for themselves jointly something which each separately could not do as economically, and which they do not choose to leave to an outside, or independent, agency. Briefly, then, co-operation in agriculture means the organized working together of farmers for the transaction of business. The essence of such a business is the common advantage of the group. It is a method of performing a work which, presumably can be more economically performed by the interested parties than by the tradesmen outside the group who are disposed to perform the service for gain to themselves. In true co-operation there are no true profits but rather savings. The co-operative company may hope to eliminate profits such as a private company strives to get, but salaries and wages of manager and employees will have to be paid by any such company of any considerable size. In some minor undertakings the work is sometimes done by members, free of charge, thus eliminating both profits and salaries. There is no dividend on stock above nominal interest rates; the increased price for produce, decreased price of supplies, or the more favorable rates on loans, use up the surplus which otherwise might go into dividends. Presumably, it is a method of taking some of the friction out of the processes of production, distribution and exchange, and bringing the co-operator more directly in touch with the markets in which he has business to transact.

Kinds of Co-operation.—Co-operation may have for its object either the buying or selling of goods, and these are by far the most usual objects. In many countries the furnishing of credit is one of the most prominent objects of all agricultural co-operation. Less frequent but quite as important, is co-operation practiced in some lines of production and manufacture.

Prerequisites to Success in Co-operation.

So often has co-operation proved a disappointment to those engaged in it that it would seem desirable to find out, if possible, what circumstances must surround a co-operative undertaking in order that the chances for its success may be considered favorable. It is not likely that all of the theoretically desirable conditions will be found in a given community, nor are they necessary. On the other hand, should a considerable number of unfavorable conditions be found in a locality the prospects of success in co-operation at that place would seem small. The following are some of the leading conditions of success:

Sufficient Business a Necessity.—This might be taken for granted were it not for the fact that a great number of co-operative enterprises have failed because of a lack of sufficient business to make a profitable undertaking possible. A co-operative company is not unlike a private company in this regard though the situation may not be so apparent to the men engaged in the co-operative enterprise. For example, very many co-operative creameries have failed because of a lack of sufficient milk or cream out of which to make butter. A privately owned creamery under the same circumstances would experience the same difficulty. But a privately owned plant is not so likely to be established under such unfortunate circumstances. Some shrewd promoter is often able to persuade a group of people to do what none of them separately would undertake. The divided responsibility and the small value of the share are good talking points in getting men into companies, and often their knowledge is limited as to the amount of business

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Guaranteed genuine 21 ruby jeweled watch, both case and movement guaranteed 20 years, latest Railroad model, adjusted to 3 positions, also heat and gold, patent regulator, exposed winding wheel, double sunk white enamel dial, heavy spine hands. Elegantly engraved gold filled case, either open face or hunting style. Movement stamped and guaranteed 21 Jewel, case stamped 20 year guarantee. Worth \$25 to anyone who requires an absolutely accurate timekeeper. Biggest bargain ever offered. Send your name and address and we will send this watch C.O.D. by Insured Parcel Post. Pay your postman \$5.95 when you receive the watch. Satisfaction guaranteed or money refunded. Order today, mention open face or hunting style. **AROLD WATCH CO., Dept. G-1, CHICAGO, ILL.**

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All prices are smashed during this wonderful 60-day sale. This is your opportunity to get that long-wanted diamond at an astounding saving!

PERFECT CUT DIAMONDS — \$25 On 30 Day FREE Home Trial!

Beautiful, perfect white diamonds—ladies' or gentlemen's as low as \$25. Save 75c per carat. Free inspection allowed before you decide.

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ALFRED WARE COMPANY, Dept. 53 St. Louis, Mo.

WITTE Sells For Less

And gives you better engines. Sold Direct from Factory to Users. Cash or Easy Terms

WITTE Engines

Kerosene, Gasoline and Gas

2 to 22 H.P. Standard for all farm and shop work for 27 years. Recommended by users in all parts of world. No cranking; Long wearing; Steady power.

60 Days Free Trial. 5-Year Warranty.

Engines shipped ready to work, easy to start and run. 2 H.P. \$34.95; 4 H.P. \$69.75; 6 H.P. \$89.95; 8 H.P. \$109.50; other sizes proportionally low.

Catalog Free.

WITTE IRON WORKS CO.
2107 Oakland Ave.,
KANSAS CITY, - MO.

needed or available. Many creameries have been organized in communities having but a hundred cows when at least four times that number were needed for success. Not only is the investment disproportionately large where the amount of business transacted is small, but it precludes the possibility of providing for the employment of good managers. Any business venture involves the question of the probable amount of available business but a co-operative enterprise especially needs to be undertaken with caution in this regard for no one man is shouldering the whole burden and there is danger that too much dependence may be put upon the bare principle of association.

Confined to One Community.—There are instances to the contrary, but in the main it is safe to say that the prospects of success are much greater where the co-operators live sufficiently near together to permit frequent gatherings, or in any event, acquaintanceship. The great majority of the co-operative enterprises of Europe center in the village where the members are near neighbors and are intimately acquainted. In this country the greater proportion of successful co-operation is decidedly local in character; while the more general and widespread efforts, such as those tried by the Grange, show the greater difficulties involved in getting co-operation to work at long range and among men not well acquainted with one another. A good example of the working of this principle is seen in connection with the creamery industry, where cream, or milk, is brought together from within a small radius within which neighbors are acquainted. In other sections, as in Nebraska, where farms are large and comparatively few cows per farm are kept, the conditions do not seem favorable for the successful operation of co-operative creameries. Although many more have been started there are now but four in the state.

Where the business is well established in a number of localities there is no reason why a larger unit may not be made by combining the local groups into a larger association. While associations covering wide areas may succeed it is certain that such organizations with scattered memberships work against heavier odds.

A Business Simple in Character.—It is to be taken for granted that the board of directors is to be made up of bona fide farmers who will actually direct the affairs of the association. To do this the directors must have a full and clear view of what is to be done. Without doubt farmers are capable of becoming directors in the most intricate business undertakings, but to do so usually means that they must devote the greater part of their time to such business, and turn over to others the operations of their farms. In farmers' co-operative undertakings it is desirable for the farmers to prosper in their own affairs, not to be drawn away from them. The businesses which they are to direct should therefore be simple like the manufacture and sale of butter, the sale of grain, or the purchase of feeds. The management of intricate manufacturing establishments or complex transportation companies should not be undertaken.

Vital Interests Involved.—It is evident from the facts of co-operation now in effect that farmers will co-operate in matters in which they are deeply interested, and will refuse, or fail, to co-operate in matters in which they have but a secondary interest. For example, the orange growers of California run a remarkably successful co-operative company. The dairy farmers of the upper Mississippi valley have a great number of successful creameries and cheese factories. On the contrary, the farmers of the Middle West grow a great deal of fruit but they do not in many instances co-operate in its marketing. Likewise the

farmers of southern Iowa, of Missouri, and of Kansas milk many cows, but in these sections co-operative dairy organizations do not flourish. To be a good member of a co-operative company each individual must feel that his interests are those of the company and its interests his. Otherwise the co-operative company will be given but little attention. He must think in terms of the association. An apple grower knows apples and gets his living by selling them. It is of vital concern to him whether he gets a dollar or a dollar and a quarter a box for his crop, while to the average Iowa or Illinois farmer the price of apples is of little moment. However, a margin of 5 cents a bushel on grain to them often makes the difference between profit and loss.

There are abundant exceptions to this general proposition so far as mere numbers of associations go. For example, the co-operative telephones and the mutual insurance companies are numerous. These companies involve so little farm finance, however, that they can and are run without much attention from the average farmer. They are good things, but enter very little into the ups and downs of farming. Thus it might almost be said that the business which lends itself to co-operative action is either that in which the farmer has the greatest concern, or that in which his concern is constant but very slight, and which can be run with little or no attention from the majority of farmers involved.

Co-operative Business and Speculation.—That there is an element of speculation in almost any business is beyond question. It is also true that speculation is a prominent part of many businesses. If a given farmer wishes to try a speculative venture, such as holding his crop of corn till the succeeding year, or buying his neighbor's corn in the fall to hold till spring, his friends and neighbors can raise no objection. If, however, he and his neighbors are in a co-operative association and the association should undertake the same thing there is almost sure to be trouble. The decreases in prices are almost as numerous as the advances. There are incidental losses. Some speculations are sure to be disastrous. If an association speculate and lose there will be severe criticism and in most cases trouble. The selling of grain is to a considerable extent speculative. As handled by co-operative companies the speculative features should be reduced to a minimum. The best authorities agree that were the speculative features developed it would mean disaster to this type of co-operation. Where risks are great the daring of the individual seems best able to cope with it, while a conservative undertaking may be carried on by the joint action of a large number. A group of men seldom lays a wager, individuals often do. Hence a group may conduct a regular business, but the less there is in it the nature of a game of chance the more likely they are to agree among themselves as to the steps to be taken and the more likely they are to be satisfied with the results.

(To Be Continued.)

MORE CORN WILL MEAN MORE BEEF.

The fact that the total production of corn in Minnesota has doubled during the past ten years is perhaps the most significant thing in the agricultural development of this state. No farm crop is capable of furnishing so much fattening material at so low a cost of production as this cereal. The stalks properly cured in the shock, or what is better, in the silo, provide an extremely valuable adjunct for cattle feeding, says H. R. Smith, University Farm, St. Paul, Minn.

Mr. Smith found after a series of experiments, covering a period of ten years, that beef can be produced in Nebraska at the lowest cost and with the highest profits on a combination of the corn plant and alfalfa hay. In every experiment where this combination was fed, there was found to be a substantial profit over and above the cost of food, even at times when other combinations were fed at a small loss. Clover belongs to the same family

FARMERS EQUITY UNION COAL

Blackbrier—Highgrade
Cantine—Semi-Highgrade

From our Illinois mines—Now used by many branches of the Farmers' Equity Union in the different States.

Reference: Mr. C. O. Drayton, National President Farmers' Equity Union. For prices, freight rates and any desired information, write to us.

LUMAGHI COAL COMPANY

606 Equitable Building, St. Louis, Mo.

SHIPMENTS ANYWHERE.

NEARLY FREE THIS BIG 3½ FOOT TELESCOPE with Patented Solar Eye Piece

Here's a bargain. Never before has it been possible to obtain a Multi-focal telescope with solar eyepiece attachment for less than \$8 to \$10. But because we have made special arrangements with the inventors, and pay no patent royalties, and have them made in tremendous quantities by a large manufacturer in Europe with cheap labor, we are enabled to give you this outfit, provided you will send us \$1.00 to pay for a one year, now or renewal subscription to COLMAN'S RURAL WORLD and 35 cents extra to help pay mailing and packing charges on the telescope outfit (total \$1.35). Think of it—the solar eye-piece alone is worth more than that amount in the pleasure it gives—seeing the sun spots as they appear, and inspecting solar eclipses.

The Excelsior Multi-focal Telescope has a multiplicity of uses—its pleasure is never dimmed—each day discovers some new delight. Distinguish faces blocks away. Read signs invisible to the naked eye. Use it in cases of emergency.

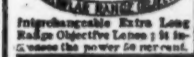
Take the Excelsior Multi-focal Telescope with you on pleasure and vacation trips, and you can take in all the scenery at a glance—ships miles out; mountains, encircled by vapors; bathers in the surf; tourists climbing up the winding paths.

Used as a microscope it is found of infinite value in discovering microbes and germs in plants and seeds, etc. The Excelsior Multi-focal Telescope is mechanically correct—brass-bound, brass safety cap to exclude dust. Powerful lenses, scientifically grounded and adjusted. Handy to carry—will go in pocket when closed, but when opened is over 3½ feet long. Circumference, 5¼ inches. Here-tofore telescopes of this size, with solar eyepieces and multi-focal lenses, have sold for \$8 to \$10, or even more. We do not claim our telescope is as nice and expensive in every particular of construction as a \$10 telescope should be; that would be unreasonable; but it is a positive wonder for the price. Each telescope is provided with 2 interchangeable objective lenses—one for ordinary range and hazy atmosphere, the other for extra long range in clear atmosphere, increasing the power and utility of Telescope about 50 per cent.

COULD COUNT CATTLE NEARLY 20 MILES AWAY
F. S. Patton, Arkansas City, Kansas, writes: "Can count cattle nearly 20 miles; can see large ranch 17 miles east, and can tell colors and count windows in house."

L. S. Henry, The Bronx, New York, writes: "Your solar eyepiece is a great thing. I witnessed the eclipse at the Austrian Tyrol when the sun was almost 80 per cent concealed."

COULD SEE SUN SPOTS
Rutland, Vt., Feb. 16, 1910.—Telescope arrived O. K. I have seen the spots on the sun for the first time in my life.—Dan C. Safford.



Interchangeable Extra Long Range Objective Lenses; 1 is 15-1/2 inches the power 50 per cent.

LIMITED OFFER
Send us \$1.00 to pay for a one year extension on your subscription to COLMAN'S RURAL WORLD, and 35 cents extra to help pay mailing and packing charges on the complete telescope outfit which will be sent postpaid (total amount to remit, \$1.35). Absolute guarantee of satisfaction or money refunded. DO IT NOW.

COLMAN'S RURAL WORLD
718 LUCAS AVE., ST. LOUIS, MO.



RING AND BRACELET GIVEN
For selling 6 boxes of Smith's Rosebud Salve at 25c per box. A great home remedy. When sold return the \$1.50 and we will promptly forward this beautiful gold laid, new style, patent hinge bracelet, and gold shell wedding ring, or choice from our large premium book. **SEND NO MONEY.** We trust you. **ROSEBUD PERFUME CO.**
Box 141, Woodboro, Md.
This offer made by old reliable firm estab. 25 years.

XUM

as alfalfa, and can also be used to excellent advantage in connection with corn. Both hay plants supply the nutrient which is lacking in corn, namely, protein, to give a well-balanced ration, though alfalfa is somewhat richer than clover in this.

The growing of more corn means cleaner land in Minnesota, and when fed to livestock, as should be done to be most profitable, it is certain to encourage the growing of more clover and alfalfa for use as a supplementary feed. Both add greatly to the fertility of the land making it possible to increase the yield to the acre.

With increased corn production naturally follows more livestock, adds Mr. Smith. It is especially favorable to the production of beef cattle because of the roughage such cattle consume in connection with grain and because a large number can be fed on the farm with but little labor.



BRACELET AND RING FREE
This beautiful Bracelet is all the rage. Adjustable to any size wrist, gold plated throughout. Engraved links. Set with fancy engraved beaded ornament with large ruby stone. Ring is set with 2 brilliant. Very handsome. Free for selling only 50 of our magnificent art and religious pictures at 10c each. We trust you with pictures until sold, and give an extra gift of 40 beautiful postcards for promptness. Send name today.
People's Supply Co., Dept. R.W.716 Lucas Ave., St. Louis

Home Circle

MY PRODIGAL.

Last night the boy came back to me
in dreams—
The little lad, with laughing eyes of
gray;
Came from far countries, where his
young feet strayed—
So long, so long, since he had gone
away!
Unshaken by the world's wild strife
he came
Just as he went; and with his brave
young eyes
Mocked at the shadows by the great
world flung,
Facing the future with a pleased
surprise.

And I, grown old through patient grief
and pain,
Gave him sweet welcome to my
home and heart;
Laughed with his laughter as he dried
my tears,
Soothed by the thought that we no
more should part.
So, binding him with gentle cords of
love,
Lest he grow restive and away
again,
I followed where his merry footsteps
led,
And in his joy my heart forgot its
pain.

But all too soon the cold gray dawn
dispersed
The slumber-mists from my sad
eyes away;
My empty, aching arms again out-
stretched,
I was too grieved, too desolate to
pray.
For on my shrinking heart, like
thrusts of sword,
The cruel truth beat out this sad
refrain—
"The boy, long-wandered among men,
is lost;
Only in dreams will he come back
again."
—Henel Watts-McVey, in The Com-
moner.

A MEDLEY.

To Everybody and His Wife.

It has been so long since I wrote to
the Rural World many of the readers
will certainly rejoice at my return,
ahem. My letters to the Rural World
date as far back as 1880 to 1890; usu-
ally written for the Home Circle
under the name of Murphy Jr.

I well remember many of the writ-
ers of these dates. I was what is
known before that date, at that date,
and ever since, as a crank. I have
tried so many fakes and got left so
often that it seems strange to think
that I have missed the penitentiary,
the insane asylum and the poor house.
I have built many air castles, usually
of moon beams, but with all of my
crankiness I never built a real air
ship, nor ever hunted for the North
Pole, although I am aware of what a
great blessing it would be to the cit-
izens of America in the way of cheap
food and clothing if we find the pole.

Some of the enterprises that I have
engaged in were these: I have been
in merchandising business in eleven
buildings; in grain business twice;
ran a saw mill; in lumber business
three times; in the coal business
twice; undertaking business twice;
built three flour mills for myself; ran
a brick yard; built several houses
and barns, for others, and built eight
houses for myself; have tried many
new fruits, plants, seeds, etc.; ran a
nursery several years, and sold nurs-
ery stock over 50 years; ran a cement
block machine; ran a tin shop;
owned Angora goats, milk goats Here-
ford cattle, English pheasants, fish
ponds and Indian Runner ducks; 15
breeds of chickens; raised such fruits
of most every kind that grow in Illi-
nois and tried scores of fruits, berries
and seeds that was a failure; very
seldom failed to be disappointed; have
spent thousands of dollars on get-rich-
quick schemes, and in every instance,
so far, have fell overboard. It don't
seem reasonable that I could be in-
duced to try such fakes again, but if
a good looking man would come and
look wise and talk like a saint I

could hardly wait for him to unload
his fabulous scheme so I could write
him a check. I wish one would ap-
pear just to see if I had any sense
today.

I put up the first Ferris wheel in
this country, and had it at the fair in
Hillsboro in 1858. Built the first mer-
ry-go-round, in 1859. In this country;
took it to carlinville and Hillsboro
to the fairs.

I have gotten three United States
patents.

I have run around in Tennessee,
Florida, Alabama, Missouri, Kansas,
Arkansas, Oklahoma, Nebraska, Colo-
rado, Utah, Wyoming, Idaho, Montana,
Oregon, Dakota, Minnesota, Wisconsin
and Iowa with real estate men, hunt-
ing a fortune, and have passed over
scores of opportunities that was of-
fered that I could have taken that
would have soon brought me from
\$25,000 to \$500,000, but I was too blind
to see it till too late. I have bought
many thousands of acres of land, but
sold it all too soon.

I furnished three men in Missouri
and two men in Kansas with sheep;
two men in Kansas and one man in
Missouri with goats; two men with
cattle and one with horses in Kansas,
and just about broke even.

I owned a half interest in a second-
hand store in Carthage, Mo. I have
raised and sold over \$7,000 worth of
golden seal and ginseng roots. I
tried the ozone preservative and tried
the silkworm business.

I have evaded law suits and fights—
only one fight; I told a chum a secret
and he promised to not tell any one,
but he did, so I whipped him for it.
I am now in on the sweet clover. It
is O. K. No dread of Hessian fly,
chinch bugs or hot, dry weather. It
is certainly what we want here, as it
has advantages over any other feeds
we can raise in this country. I don't
believe there has been anything in
this region that will furnish such a
good and cheap fertilizer. It makes
fine early pasture and good till frost
kills it. Cattle, horses, hogs, sheep
and poultry are very fond of it. Will
grow almost anywhere if the land is
not too wet. I believe it will be the
greatest step ever introduced in the
Ozarks of Missouri. It would be at
home in their flint and limestone
lands.

I have had over 20 partners in
business. I have worked as deck-
hand on a steamboat. I took a trip 50
years ago through the Rocky Mountains
of over 2,000 miles, when that country
was in possession of the Indians,
buffalo, wolves, antelopes, elk and
deer, and if I should attempt to give
anything like a full account of that
trip it would take more than one page
in the Rural World.

I expect this letter is so long that it
can't escape the capacious maw of the
waste basket. H. M. KELLY.
Irving, Ill.

SCHOOL FARMS.

Department of the Interior, Office
Commissioner of Indian Affairs,
Washington.

August 10, 1914.

To All Superintendents:

I am not satisfied that we are mak-
ing the greatest use of our school
farms. They usually consist of large
tracts of fertile land capable of raising
every crop that the climate in which
the school is located will permit. In
some cases these farms are well irri-
gated.

In every case the schools have been
or can be furnished with all the equip-
ment necessary to till their farms to
the fullest extent, and they can be fur-
nished with stock with which to make
a substantial showing in stock raising.

The agricultural training of the boy
pupils in our schools furnishes ample
opportunity for intensive farming. If
this training is to be of real value and
be effective in accomplishing its pur-
pose the farming operations should be
financially successful and at the same
time conducted in accordance with
modern methods.

I am convinced that there is a large
field for improvement in the handling
of these farms, and I want every field
officer who has charge of such a farm
to see that its management is of such
a nature as will insure its development
to the highest degree of productive-

ness, practical usefulness and object
lesson.

The constantly increasing demands
on the various appropriations for the
Indian service make it necessary not
only to exercise the most careful econ-
omy consistent with the end sought,
and at the same time to see that every
resource in connection with Indian
education and industry is developed
to the highest obtainable degree.

See that employes in charge of your
farms are men capable of rendering
proper and efficient service, carefully
determine the suitable crops for the
particular soil of the tillable land of
your farm, giving the best attention to
the raising and use of these crops.

Our farms should grow corn, oats,
wheat and raise alfalfa, clover, timo-
thy, etc. You should raise all the po-
tatoes and other vegetables consumed.
We should not be satisfied with raising
feed for the school livestock, but we
should raise everything the farm, gar-
den and orchard will produce.

I want you to raise live stock to the
fullest of your capacity; raise colts
from the school mares; let your calves
grow into beef for your school. Grow
a good herd of hogs to follow the cat-
tle that you feed and use the waste
from the table at the school. Make
your dairy amply large and of such
kind that there will be plenty of milk,
cream and butter. Feed the skim milk
to the hogs and grow your pork meat.
Where practicable cure your own bac-
on and ham, make your own sausage
and dry and corn your own beef.

Give careful consideration to chick-
en raising. You should establish
chicken houses and place girls in
charge of the chickens. This would
furnish poultry and eggs for your
needs and at the same time train your
girls in an industry which will be of
value to them in their future homes.

Under some conditions it may be
practicable to have a few swarms of
bees. Start an apiary and teach bee
culture while at the same time obtain-
ing a supply of honey for table use.

We should have orchards and vines
to grow fruit at our schools which are
best adapted to the locations and cli-
mates. The care of these orchards and
the raising of small fruits will give
important training to the boys and
girls.

Each school should have a truck
garden to produce the green stuff
necessary for its own table. Under
proper climatic conditions enough
corn, onions, cabbage, tomatoes, beans,
etc., should be grown not only to sup-
ply the school with fresh vegetables,
but to furnish a good supply for win-
ter use. The canning of vegetables
and fruits is highly important.

I fully appreciate the fact that at
some of our schools, because of cli-
matic conditions, diversified farming is
impracticable, but there are very few
Indian schools which do not have
farms peculiarly adapted to certain
lines of agriculture and horticultural
development. Where diversified farm-
ing is impracticable the natural re-
sources of the farm should be fully de-
veloped. If you can raise nothing but
wheat see to it that every acre of avail-
able land is used for wheat. Grow
the best wheat and produce the maxi-
mum yield per acre for your locality.
If your school is located in a stock
raising section of the country and you
have a large acreage of grazing land
you should raise beef, not only for
your own use but to supply other
schools.

A school in a locality where vegeta-
bles and fruits are easily raised should
can or preserve a surplus of these
products for sale to schools not so
fortunately located.

I believe there is a splendid chance
for increased efficiency of our school
service by special efforts and co-op-
eration along the lines indicated. I
must insist that you give the develop-
ment of the school farm your most
careful attention to the end that the
highest degree of efficiency and re-
sults be accomplished. There is abso-
lutely no excuse for a waste acre or
overlooked opportunity on a school
farm. We need all they will produce,
and cannot justify the purchase of
anything we can raise. It is incon-
sistent and indefensible for us to ex-
pect Indian boys and girls to return
home from their schools and do more
than they have witnessed their teach-
ers doing for them when they are
supposed to be qualifying themselves

YOU NEED MEDICINE AT THIS TIME.

When nature falters and from over-
work a tired, worn-out body is unable
to perform its natural functions, EL-
LA R. BERRY'S CREOLE TEA is in-
dicated and may be confidently relied
upon to stimulate the liver and by
freely taking it all the year around,
by old and young alike, Chronic Con-
stipation, Indigestion, Colds, Rheuma-
tism, Bad Complexion and Skin Dis-
eases can be relieved and overcome.
For nursing mothers, after it is
steeped, as told on each box, and for
children, there is nothing better than
ELLA R. BERRY'S CREOLE TEA in
Herb form. A little sugar can be
added to the tea and mild doses, ad-
ministered from time to time, will
keep them well and healthy. At all
drug stores, 10 cts. a box.



GERMAN SILVER MESH BAG FREE

Oxidized frame, prettily
embossed with handsome floral
design; 10-inch chain.
Mesh Bags are all the rage.
Very handsome. Given free
for selling 20 large art and
religious pictures at the cost.
We trust you with pictures
until sold, and give 40 hand-
ful postcards as a extra gift
for promptness. Send name.
A postcard will do.
People's Supply Co., Dept. V
716 Lucas Ave., St. Louis

for industrial equipment and self-sup-
port.

Superintendents, inspectors, super-
visors and special agents are directed
to give this matter their prompt and
most careful attention and fully advise
me of the steps taken by field officers
to make effective these suggestions.

CATO SELLS, Commissioner.

QUIT SCHOOL—SORRY NOW.

The number of boys and girls that
are seeking to enter the Colorado Ag-
ricultural College, when they do not
have nearly enough credits, has im-
pressed upon me more than ever the
necessity of going to high school
when at the high school age.

A very large number of the young
folks quit after one or two years of
high school.

Later they see the need of a col-
lege education. They are shut out by
entrance requirements.

They say they are too old to take
up high school work again, but as
long as they have the ambition to go
ahead, they are not too old. College
students are of all ages, from 15 to
60. It is not a question of age but
of interest.

I find a number of pupils quit be-
cause they fail in some subject; a
number want to get to work, and a
number think they know enough.
Many boys and girls are feeling keenly
their mistakes.

Young people, before you decide not
to go to school this fall, think the
matter over very, very seriously. Re-
member the opportunities of the fu-
ture depend upon your decision.

Parents, hadn't you better think
over the matter once again, before
you permit your son or daughter to
drop out of school? You will not want
to be responsible for the inability of
him or her to meet the keener prob-
lems of life as they arise.—B. F. Coen,
Colorado Agricultural College.

A pinch of soda added to a pie be-
fore the top crust is put on will pre-
vent it from running over in the oven.

SCHOOL DAYS.

Now the sun is shining,
The sky clear and blue;
The voices of song-birds ringing
Amid the morning dew.

I hear the Old School-bell ringing
Across the distant plane;
Telling all the little children,
'Tis school-time again.

Merry tots with books and baskets,
All making a cheerful sound,
Swiftly scampering along the path
That leads to the Old School ground

The teacher standing in the door,
Filled with joy, love and smiles,
While thinking of the days of yore—
Says, God bless each little child.

RICHARD E. WINGO.

Kentucky.



CATARRH ASTHMA AND HAY FEVER VICTIMS HEAR YE!

No matter how chronic your Catarrhal troubles, Asthma, Hay Fever, Cold Deafness and Head Noises may be we will prove to you at our expense that they may be banished. True, others will tell you what they have done, but who else offers to send a full complete treatment on free trial without asking you to risk a penny until you are satisfied? Just think what it means. We are strangers. We don't know you and you don't know us. We, however, know the superior merit of this wonderful treatment—the relief it will give you. And that is why we are willing to send this marvelous Swiss-American Vaporator **complete and ready for use** on an absolute five day free trial basis. It will quickly relieve you of the suffering, agony, embarrassment and humiliation of these loathsome and dangerous diseases. Remember, we leave everything to you. **You are the sole judge.** "Get relief first, then pay" is our motto. Mail coupon to us today and the full and complete treatment will go to you by Parcel Post prepaid.

**COMPLETE TREATMENT
TO YOU FOR FIVE DAYS**

FREE

You get this complete treatment—a treatment that will last a lifetime—a treatment that requires no re-orders, no "come-ons" of any kind, no samples, everything goes to you complete and ready for use. Use it as if it were your own. Prove to yourself at our expense that the Swiss-American Vaporator treatment will give you the relief that you seek. You have full five days to decide. We leave everything to you. If you are not satisfied after the free trial then return the Vaporator treatment to us, and that ends it. But if you are satisfied, then you may send \$1.50 and pay \$1.00 a month for 5 months, making a total of \$6.50 and giving you practically half a year to pay for it. It will give you the relief you have long looked for or back it comes to us. We could not afford to make such an astounding free trial offer unless we were absolutely certain that this remarkable vaporator treatment will do all for you that we claim it will. Remember there are no re-orders. There is nothing further to buy. This Vaporator with ordinary care will last a lifetime, and should protect you against similar attacks in the future. Send us your name and address on the coupon today.

MAIL COUPON NOW

Simply write saying, "Send me the Swiss-American Vaporator Treatment, complete and prepaid on five day's free trial." It will then be sent to you free and absolutely not one cent to pay. You keep it five days to thoroughly prove every claim we make for it, then if you are satisfied send us \$1.50 and \$1.00 a month until \$6.50 in all is paid. If it does not give you the relief you seek send it back in five days and you will have risked nothing and will be under no obligations to us.

**FREE
TREATMENT COUPON**

Swiss-American Vaporator Co., Dept. 141,
102 No. Fifth Ave., Chicago.

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Please send me your Swiss-American Vaporator Treatment complete on 5 days free trial, in accordance with your offer made in Colman's Rural World.

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Lasts as Long as the Building Stands**

That's the kind of roof you want to invest your money in, isn't it?
All roofing you have ever bought heretofore had three cost prices—the
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Once you have purchased and laid Edwards Tightcote Galvanized
Steel Roofing your roofing expense for that building is at an end for all time.

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protection is absolute. Its years of service, as long as the building stands. Always
beautiful in appearance. *Guaranteed Fire-proof, and Lightning-Proof. Reducing
the cost of your fire insurance.*

EDWARDS Exclusive Tightcote Process Makes Rust-Proof Roofing

The Edwards process of galvanizing makes the zinc spelter practically one piece with the
steel. No ordinary galvanizing can compare with it. Each and every Edwards Metal Shingle,
Metal Spanish Tile, each sheet of Edwards Reo Steel Shingles, Grip Lock Roofing, Pressed
Standing Seam or Roll Roofing is dipped in a bath of molten zinc, one at a time after the metal
has been stamped and resquared. This insures a uniformity. The edges are galvanized as
heavily as the sides. Not the space of a pin-point on the steel is exposed to the rain, snow,
frost, acids or anything that eats or destroys a steel roof.

How to Test Galvanizing

Take a piece of any other galvanized steel, bend it back and forth several times, hammering
it down each time. You will then be able to flake off great scales of the galvanizing with the finger
nail. Apply this test to a piece of Edwards Tightcote Galvanized Steel Roofing—you'll find no flak-
ing—not a space on the metal the size of a pin-point exposed to rust.

EDWARDS Patent Interlocking Device

Prevents Warping, Buckling or Breaking—Protects Nail Holes—They Can't Leak or Rust

This device not only takes care of expansion and contraction so that an EDWARDS Steel Roof
never warps, buckles or breaks, but it is so designed that nails are driven through the *under* layer of
metal only—nail holes are protected from exposure—cannot rust. No special tools or experience needed
to lay it—anyone can do the work—lay over old shingles if you wish.

Reo Steel Shingles

cost less—outwears three ordinary roofs and are your joy and pride forever. A most beautiful roof.

No matter what kind of a building you have in mind there is a style of EDWARDS Tightcote Galvanized
Roofing exactly suited to your needs. We manufacture and sell all of the many patterns of Edwards Reo
Steel Shingles, V-Crimped, Corrugated, Standing Seam Roofing, Siding, Ceiling, etc., painted or galvanized,
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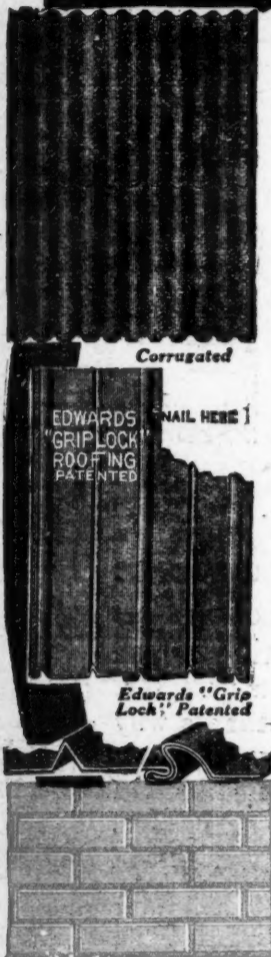
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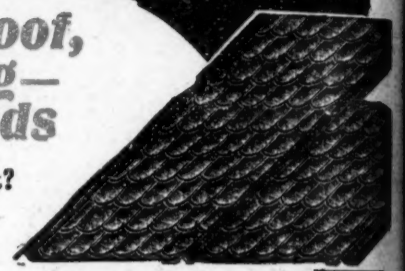


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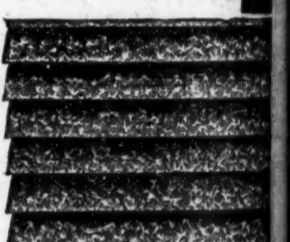
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